CUSTOM LINE 140’

Owner’s Manual

CUSTOM LINE

BEYOND THE LINE

A FERRETTIGROUP BRAND

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CUSTOM LINE 140’

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Foreword

1.1 GENERAL INFORMATION

NAME OF THE YACHT _____ **CUSTOM LINE 140'**
TYPE OF YACHT _____ **PLANING MOTOR YACHT**

CAUTION
The yacht must be supplemented with the equipment required by the local flag authorities.

1.1.1 Introduction to using the manual

Prior to operate the yacht and the equipment on board, read the manual carefully, in order to acquire an adequate familiarity with the systems and their operation, so as to avoid hazard to personnel and risks of costly damages.
Constant and regular maintenance of the on-board systems and of the yacht allows to extend its life and safe operation.
The maintenance operations described in the manual are simple, but should be performed by authorised and qualified technical staff only in compliance with national and international regulations.
For specific interventions it is advisable to request the service of specialized technicians or contact our Service Department.

For an easy and quick consulting, the manual is subdivided in the following sections:

- FOREWORD
- SAFETY
- DESCRIPTION OF THE YACHT
- HELM STATIONS
- WATER SYSTEMS
- ELECTRIC SYSTEM
- PROPULSION SYSTEMS
- YACHT STEERING SYSTEMS
- AIR CONDITIONING AND VENTILATION
- AUXILIARY EQUIPMENT ON BOARD
- INFORMATION FOR USE
- HULL AND FURNITURE MAINTENANCE
- TROUBLESHOOTING

CAUTION
Please keep this manual carefully in a safe, dry and easily accessible place for an easy consultation.
When you decide to change the yacht, deliver this manual to the new owner in its integrity.

1.2 MANUAL INTRODUCTION

The documentation provided by CUSTOM LINE to the Owner consists of two types of documents:

- The "**Owner's Manual**", edited by experienced professional staff in compliance with the regulations in force;
- The **Technical Document Collection**, concerning the on-board devices/systems (engines, air conditioning, etc..): it consists in a series of independent manuals, delivered by the relevant Manufacturer and/or Suppliers.

The Owner's manual is the Main Document and must be read in whole, in any case before considering the documents in the Technical Document Collection.

The associated Technical Documentation Collection makes up the set of the Reference Documents that are required to complete the information provided in the Owner's Manual.
Since these documents are independent and aimed at giving information on specific single components, it is necessary to refer to them when indicated by the Main Document.

CAUTION

CUSTOM LINE recommends carefully reading the whole documentation delivered by the Manufacturers of the various components.
For all problems concerning the use and the maintenance of components you can refer directly to the Service Departments listed in the documents delivered by the Manufacturers.
Anyway, in case of need, some little interventions can be carried out by the staff on board, after consulting the operation manual.

This manual has been realized by the Builder in their mother language (Italian) and translated into other languages, to satisfy the customer's requirements, and has been issued with the purpose of assisting you with the use of your yacht in full safety and with complete satisfaction.

The manual contains detailed explanations on the yacht, the systems and equipment installed and information on the practical use of the yacht and its maintenance.

Read it carefully and familiarize yourself with its content before using the yacht for the first time.

If this is your first yacht or if you are switching to a type of craft that you are unfamiliar with, make sure you have gained enough experience in manoeuvring and operating it before taking command for your safety and to ensure maximum satisfaction.

CAUTION

Make sure that the conditions of wind and sea correspond to the design category of your yacht and that you and your crew are capable of manoeuvring the yacht in such conditions.

Even when your yacht is classified accordingly, the conditions of sea and wind corresponding to design categories A, B and C ranging from storm conditions for category A to the conditions of wind and sea strong for the upper limit of category C, exposed to the dangers of a tidal wave or a wind gust. These are therefore dangerous conditions, where only a competent crew, coached and trained on well-maintained yacht can operate satisfactorily.

THIS MANUAL must BE STORED AND WILL ALWAYS BE ON THIS YACHT AT EVERY TRANSFER OF PROPERTY.
SANCTIONS ARE ENVISAGED IF THE YACHT IS NOT EQUIPPED WITH THE "OWNER'S MANUAL".

IN CASE YOU LOSE OR DAMAGE THIS MANUAL, CUSTOM LINE WILL ALWAYS BE ABLE TO SUPPLY YOU WITH A NEW COPY OF IT.

CAUTION

CUSTOM LINE declines all responsibility for any damage to third parties due to discrepancies between the manual and reality.

CAUTION

This manual contains pictures of details not representing completely our yacht or with colours not corresponding to your arrangements. This is mainly due to the fact that it is possible to encounter problems during the realization of details' photos, like bed covers and sofas, which are defined only shortly before yacht delivery and therefore when the manual itself has already been issued.

CAUTION

There are specific regulations in force in some countries.
This yacht may only be operated by personnel authorised to control and operate in relation to the class of the yacht.

CAUTION

All yachts, regardless of their strength, may undergo serious damage if used improperly. This is not compatible with safe navigation. Always adjust the speed and course of the yacht under the terms of sea.

CAUTION

If the yacht is equipped with a life raft, carefully read the operating manual. The yacht should have on board the appropriate safety equipment (life jackets, safety line, etc..) depending on the type of yacht, to the weather conditions, etc.. This equipment is mandatory in some countries. The crew should be familiar with the use of all safety equipment and emergency manoeuvres (recovery of man at sea, towing, etc.).

CAUTION

All persons should wear a suitable buoyancy aid (life jacket / personal flotation equipment) when they are on the deck.
Note that, in some countries, it is a legal requirement to always wear a buoyancy aid that complies with the applicable regulations.

1.2.1 Service request procedure - warranty

The extensive CUSTOM LINE service network is glad to provide you with any information regarding issues not addressed by the manual. Customers may contact Dealers, Sale Offices, Service Centres or directly:

CUSTOM LINE AFTER SALES & SERVICE DEPARTMENT
Via Ansaldo 7 - 47100
Forlì - Italy
Tel +39 0543 474445
Fax +39 02 70058589
customer.service@customline-yacht.com

CUSTOM LINE has carefully selected all main components and accessories installed aboard your yacht, choosing among the most reliable manufacturers who, by offering a wide service network, also guarantee a speedy availability of spare parts.

CAUTION

For all aspects related to the warranty of the yacht, please exclusively refer to what indicated in the sale agreement and in the warranty certificate in which all warranty conditions applicable to the purchased product are specified.

CAUTION

The maintenance operations described in the manual are simple, but should be performed by authorised and qualified technical staff only, according to the standard procedures delivered by the devices Manufacturers and in compliance with national and international regulations. We suggest contacting the CUSTOM LINE after sales & service department.

CAUTION

CUSTOM LINE declines all responsibility for damage due to improper preservation and poor maintenance.

CAUTION

CUSTOM LINE declines all responsibility for the installation and operation of electric, electronic or mechanical equipment improperly installed by third parties in any unauthorised way by the Shipyard.

WARNING

CUSTOM LINE declines all responsibility concerning tampering carried out by third parties on equipment installed in the Shipyard. Such tampering or unauthorized installations will not only void the warranty, but may cause damage to the yacht and injuries to the people on board.

WARNING

Equipment and devices: engine, winch, extractors and other devices are guaranteed by their manufacturers, who will service them directly through their service points. In case of need, the CUSTOM LINE after sales & service department will support your requests in order to provide you with a quick service and to guarantee the respect of the applicable rules. Upon yacht purchase, the Owner must send the Warranty Certificates of the relevant Manufacturers, in order to start the warranty period. CUSTOM LINE will not be liable for undelivered Warranty Certificates.

1.3 KNOW YOUR RESPONSIBILITY AS OWNER

As owners of a yacht, it is your responsibility to be aware of several laws and rules applicable to navigation, operation and equipment of your yacht.

Personal flotation devices and other safety equipment must be approved by the Coast Guard and / or other organizations dealing with rules relating to safety. If approved, an adhesive will indicate on equipment itself.
Member States may impose additional requirements.
It is necessary that you know the rules that relate to your areas of action.

It is the responsibility of the owner and / or operator of the yacht to know the rules of navigation and safety and navigational practices.

Take up time to read the Nautical Rules of Navigation (COLREGS) that are found in the publication of the Coast Guard "Navigation Rules - International and Internal". CG-169 must be on all the length of more than 39 feet boats. Study the techniques of navigation and safety practices to run your yacht and its equipment.

You are the key person in ensuring the safety of your passengers, the crew and the yacht. Take up time to read the chapter on Safety in this manual for important information regarding the safety procedures.

Each yacht owner or operator must be well informed about the yacht and its systems.
Since you are responsible for the operation of your yacht, we provide you with information about these topics.

For every system on board we have planned a detailed description, including diagrams where appropriate, as well as information about the Maintenance and troubleshooting.

A variety of instruction manuals, courses and videos to help you to improve your knowledge of navigation rules, navigation, operation of the yacht, naval electronics operation, Maintenance, etc..

1.4 NOTICES

To highlight particularly significant sections and/or to indicate some important requirements, some symbols have been defined as follows.

DANGER

It indicates the existence of a serious hazard that could involve a high probability of death or of serious injury if suitable safety precautions are not taken.

WARNING

It indicates the existence of a possible hazard that may lead to personal injury or death, if proper safety precautions are not taken.

CAUTION

It indicates a reminder to apply certain safety measures or to avoid certain unsafe practices that could lead to personal injury or damage to the yacht, to its components or to the environment.

ENVIRONMENT

This symbol draws your attention to the possible hazards of environmental pollution.

NOTE / MAINTENANCE

Draws your attention on information and important memos or this symbol indicates the maintenance schedules on the various on board devices.

1.4.1 Specific safety warnings

They integrate the general safety notice and are aimed at providing specific information about the nature of possible dangers.

Fire hazard:
To indicate a specific fire hazard.

DANGER

The cause of fire breaking is described here.

Electric shock hazard:
To indicate a specific electrocution risk.

DANGER

The cause of electrocution is described here.

Burn hazard:
To indicate a specific burn hazard.

DANGER

The cause of burn is described here.

Forbidden areas:
To forbid the access, the transit or the stay in a dangerous area.

DANGER

This area describes the forbidden area: for forbidden areas are meant dangerous places or the approaching to mechanical moving parts.

1.5 CERTIFICATION, CLASSIFICATION AND IDENTIFICATION

CUSTOM LINE yachts undergo rigid and accurate tests required by the International Authorities in charge, in order to obtain a CLASSIFICATION CERTIFICATE.

The CUSTOM LINE 140' yacht, on which you are about to sail, has obtained the RINA S.p.A. classification (REGISTRO ITALIANO NAVALE) after supervision of the hull, of the reinforcement structures, of the power system and of the safety equipment on board.

The yacht's reference information can be found in the documents that CUSTOM LINE stores inside the yacht.

1.5.1 Yacht identification specifications

MANUFACTURER	**FERRETTI S.p.A.**
MODEL	**CUSTOM LINE 140'**
HULL	**07**
TYPE OF YACHT	**PLANING MOTOR YACHT**
CLASSIFICATION	**RINA Certificate of Class for commercial use + REG Code-Part A compliance: ✠ HULL, • MACH, Y, Unrestricted Navigation**
INTERNATIONAL TONNAGE	**398 GT**

1.6 LOAD-CARRYING CAPACITY

Maximum number of passengers	n° 20
Safety equipment	n° 20
Berths	n° 17
Divided into	• 1 in the captain's cabin (upper deck) • 2 in the master cabin (main deck) • 2 in the port-side VIP cabin (lower deck) • 2 in the starboard VIP cabin (lower deck) • 2 in the port-side guest cabin (lower deck) • 2 in the starboard guest cabin (lower deck) • 2 in the port-side crew cabin (lower deck) • 2 in the starboard crew cabin (lower deck) • 2 in the starboard crew cabin at the bow (lower deck)

WARNING
Do not exceed the maximum recommended number of persons. Regardless of the number of person on board, the total weight of persons and equipment must never exceed the maximum recommended load. Always use the seats/seating spaces provided.

CAUTION
Make sure that safety equipment is perfectly efficient and available to each passenger.

CAUTION
The maximum load carrying-capacity includes the weight of all persons on board, all their luggage and personal effects and any other equipment not included in the unladen displacement.

CAUTION
When loading the yacht, never exceed the maximum transportable load. Always take great care when loading the yacht and try to distribute the loads evenly so as to keep the correct trim.
Avoid placing heavy loads in the upper part to not reduce the stability.

CAUTION
The maximum load recommended by the manufacturer excludes the mass of the contents of the fixed fuel and water tanks when full. It must exceed the total load that can be added to the displacement to discharge and dry yacht.

CAUTION

The safety equipment provided by the manufacturer are provided for the maximum number of transportable persons.
Before navigation, check that the number of safety equipment is always greater than or equal to the number of persons on board.

CAUTION

Changes in the arrangement of the on-board masses, such as the addition of weights at the top, a structure, or the replacement of components with different specifications, can significantly affect the stability, trim, and performance of the yacht.
In such cases, contact CUSTOM LINE after sales & service department.

CUSTOM LINE 140’

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Safety

2.1 SAFETY RULES AND WARNINGS

The yacht builder has to pay great attention to safety issues, both during the design and the construction of the yacht; special care has been taken to avoid risks to the health and safety of people, who come into contact with the yacht (Captain, crew, Owner and guests).
Apart from respect being shown to the various laws applicable, all rules covering good construction techniques have been adopted. The aim of this information is to make aware uses about the need of paying particular attention so as to prevent any risk.

The navigation safety, especially with difficult weather conditions, depends mainly on the Captain choices and behaviour, who would have to adopt all possible measures for a proper yacht steering, in order to ensure a comfortable navigation.
The precaution is however irreplaceable.

All persons on board are responsible for their safety and for the safety of the others and should always adopt some precautions:

- Move carefully around the yacht because its stability may be suddenly affected by the sea waves;
- Persons on board must know where life jackets are, how to wear them and the position of the fire extinguishers (see safety equipment) and life-rafts;
- All passengers must be aware of the risks caused by fires and what to do if a fire starts;
- All persons on board must know how to behave in the event of abandonment of the yacht;
- The engine room must be properly ventilated when the engines are running or during cooling; the air vents must therefore always be open and free of obstructions;
- Access to the engine room and to the control room must be allowed only to authorised personnel, aware of possible dangers like:
  - Moving mechanical parts;
  - Hot parts and components;
  - Circuits through which flow liquids under pressure, at high temperature and irritating;
  - Circuits with flammable fluids;
  - High noise when engines are running;
  - Possibility to shift important valves for navigation safety unintentionally.

Read carefully the instructions in this manual and fitted throughout the yacht, especially those regarding safety.

Do not tamper with, disconnect, eliminate or by-pass the safety systems installed on board. Regularly verify the good working order of the safety equipment in order to guarantee their efficiency in case of need. Failure to meet such requirements may lead to serious risks to the health and safety of passengers.

WARNING
Personnel performing any type of operation during the entire lifetime of the yacht must be technically qualified and have proven abilities and experience acquired and recognised in the specific field. The lack of such skills can endanger your safety as well as the safety of people on board and the integrity of the yacht.

During normal operation or any activities on the yacht, keep passageways and escape routes in proper conditions, in order to avoid hazards to people's safety.

Make sure any parts not stored or not secured correctly, cannot move during navigation, hinder the passage, prevent the opening of inner hatches, fall against the people on board, damage or hinder the quick finding of necessary pieces.

DANGER

Carbon monoxide poisoning.

Adequate ventilation of the yacht is required when the engines are running when navigating at low speeds or in conditions where fumes may re-enter the hull.

DANGER

The personnel in charge of the yacht must not be under the influence of alcohol, drugs or narcotics.

DANGER

It is absolutely forbidden to remain on the external decks outside protected areas during navigation. It is forbidden to climb over rails and guards.

CAUTION

Always place the necessary attention while navigating, especially in adverse weather conditions or breaking waves.

2.1.1 Rules for use

The Captain should always have the requirements and specific qualification to steer this yacht as requested by the laws in force in the country of use.

DANGER

Only the personnel having a regular license or the necessary qualifications can steer this yacht.
Personnel operating the yacht must not be under the influence of alcohol, drugs or narcotics.

After having been suitably documented on the operation and controls of the yacht, the captain must simulate some test manoeuvres upon first use to identify the controls and know the typical reactions of this yacht.

WARNING

Do not use the yacht whilst the safety equipment is inoperative. Failure to meet such requirement may cause serious risks to the safety and health of passengers.

The principle operations, such as leaving port, navigation, anchoring, or mooring, should be carried out in a thorough and competent manner, particularly preparations before leaving port, should be made in an especially scrupulous manner.

All refuelling phases have to be carried out with the necessary precautions to avoid even the smallest spillage of products which could pollute the environment.

When navigating near harbours, beaches and shores, observe the directives issued by local port authorities, particularly as to the speed; high speed can originate wake waves which can jeopardize the safety of the environment and of people.

Before dropping anchor in free waters, ascertain the kind of sea bottom to prevent damaging sea life in the area.

Never throw garbage overboard whilst at sea, keep it on board and then dispose of it in an appropriate manner.

Arrange the loads evenly so as to keep the correct trim.

Do not overload the Yacht especially at bow and aft.

Observe the rules to prevent a sea collision and the speed limits, moreover pay always the highest attention during navigation.

WARNING

This yacht has been designed and built in compliance with the Relevant Classification Society Rules and is in all respects seaworthy and capable of navigation without restrictions.
However, the manufacturer draws attention to the dangers and navigation challenges in adverse sea and weather conditions.
Such navigation must be carefully afforded by the yacht's Captain who will be solely and exclusively responsible for leaving any port or shelter notwithstanding adverse sea and weather conditions forecast or adverse sea and weather conditions in act and for adopting the appropriate speed, engine revolutions and course.
The Builder declines any responsibility for improper use and navigation of the yacht in adverse sea and weather conditions.

DANGER

CARBON MONOXIDE POISONING

Fossil fuel combustion generates high quantities of carbon monoxide. This gas is a colourless, odourless and highly toxic.
Adequate ventilation of the yacht is therefore necessary when the engines or generators are switched on, especially during navigation at low speed or in conditions where fumes can re-enter the hull (such as when moored on the dock, anchored or lying at anchor).

WARNING

The Captain is the only person responsible for driving the yacht.
Prior to departure, the Captain must ensure that the safety equipment required by law is present on board and perfectly working.

CAUTION

Always place the necessary attention while navigating, especially in adverse weather conditions or breaking waves.

CAUTION

The garage hatch, stern platform, swim ladder and gangway must always remain closed during navigation.

DANGER

It is forbidden to stand or sit on the forward cockpit during high-speed navigation.

WARNING

At high speed, the use of the autopilot is dangerous and not recommended. Anyway be very careful during navigation even when the autopilot is in use.

WARNING
Do not use the Yacht if the safety equipment is inoperative. Failure to meet such requirement may cause serious risks to the safety and health of passengers.

CAUTION
Close portholes, windows and skylights during navigation, especially in poor weather conditions.
Also, make sure that you have closed or locked doors to prevent collisions with objects or people.

DANGER
It is forbidden to perform sudden maneuvers at high speed.
This can result in accidents for people on board.

WARNING
For comfort and safety, reduce the speed in the presence of waves.

CAUTION
When using a jet-ski, every passenger must wear a life jacket; The driver must also have a valid license and follow the rules of the country where it is located.

CAUTION
The pilot is responsible for ensuring boarding with the manual ladder extracted every time the yacht is NOT IN OPERATION (meaning not navigating) ALTHOUGH ATTENDED.

2.1.2 Safety rules for maintenance

Keep the yacht in conditions of the highest efficiency, by following the regular maintenance procedures recommended by the Manufacturer. A good maintenance will allow obtaining the best performance, a longer useful life and a constant respect of the safety requirements.

For the general cleaning of your yacht, only use bio-degradable or environmentally friendly products.

Before carrying out any maintenance and calibration work on board, activate all safety equipment and evaluate if it is necessary to inform everybody aboard. In particular, place warning signs in the nearby areas where operations are performed and cut off power supply to any device that, if operated, could cause unexpected hazardous conditions, thus endangering the persons and/ or property on board.

Maintenance and adjustment operations must be carried out by authorized personnel who must use all necessary protections according to the procedures provided by the Manufacturer.

All maintenance operations requiring a precise technical knowledge or particular skills must be carried out exclusively by qualified personnel with a recognised experience, acquired in the specific field of intervention.

To carry out maintenance in an area that is not easily accessible, or dangerous, take all of the necessary safety measures, according to rules and standards applicable to safety at work.

The access to the engine room during navigation must be limited only to authorised personnel.
Inspect the sea water system inlets and outlets as well as the bilge systems.

These checks are essential to guarantee the buoyancy of the yacht.

Do not perform any maintenance operations or adjustments other than those indicated and/or suggested by the Manufacturer. If necessary, contact the Service Centre for more precise instructions.

Keep all yacht's components clean by following the procedures and using the specific products suggested by the Manufacturer.

Replace all worn out parts using exclusively original spares. Use oils and greases recommended by Manufacturer. All this can ensure the yacht functionality and the expected safety level.

ENVIRONMENT
During navigation, do not release any on-board waste at sea, but keep it and dump it in waste containers ashore.
Remember that it is forbidden to dump oils and fuels into the sea, therefore it is recommended to clean the engine room bilge by using absorbent materials to be thrown later on into dedicated containers.

ENVIRONMENT
Any maintenance operation must be carried out in the strict respect of the surrounding environment. Take all necessary measures to avoid that even one single "oil drop" may be spilled: the protection of our environment starts with this type of attention.

Do not start any work before ensuring that people on board run no risks.
If something about the work to be carried out is doubtful, ask someone with knowledge. Do not draw any conclusion.

Always operate with caution, care and under safety conditions.

Apart from the regulations stated in this manual, specific warnings are given throughout. This section is meant toprovide safety rules for operation and maintenance procedures.

CAUTION

This section includes a certain amount of information to maintain the components without dangers. Remember that each time you activate the controls, you are in fact the pilot.
You must therefore read and understand the information given before activating the controls.

CAUTION

The use of faulty **lifting attachments** can be the cause of accidents; therefore, check their efficiency. Ensure the compliance of hoisting gears with local norms and their suitability for the job they have to carry out.
Also check their soundness according to the work to be carried out.

CAUTION

The use of **unsuitable clothing** can cause accidents; do not wear loose, flapping clothes which could easily get caught in the yacht's moving parts. Wear protective clothes suitable for the kind of work to carry out (helmets, safety shoes and protective goggles, overalls). Button cuffs, do not use ties or scarves and do not leave your long hair loose.

DANGER

Moving engine parts are dangerous; do not open the protective casings provided by the manufacturers when using the yacht.

CAUTION

It is extremely dangerous commands act on the yacht while intoxicated or under the **influence of medication**.
Refrain from using alcohol or drugs before and during work.
Do not take medicines that cause drowsiness.

CAUTION

Be **alert and use the greatest caution** while working.
Take great care to avoid possible dangers.

CAUTION

Lifted equipment may fall and hurt you. Do not walk or work under lifted devices not sufficiently and safely supported.

CAUTION

The cleaning of the metallic parts with non suitable solvents may cause corrosion; use detergents and solvents of the prescribed type only.

CAUTION

Activating the **throttles** from outside the helm station can cause serious accidents even fatal ones: controls must only be operated from the correct position in the helm station.

CAUTION

Yacht entrance. Always face the yacht to enter or leave it and use the handles and the steps. Make sure that steps, handles and rubber soled shoes are clean and dry. It is advised to remove the shoes. Do not jump down from the yacht; do not use the yacht controls as handholds; use the handles.

CAUTION

Metallic chips from working with metallic parts can cause injury: always wear safety goggles and use a soft mallet or punch.

CAUTION

Insufficient information may cause accidents. If two or more persons are working simultaneously in the same area, make sure that each one of them is aware of the operation carried out by the others. Before starting the engine, move the other persons from the risky areas (rotary blades and engine belt, tools and movements, engine inner and rear parts). Failure to comply with these precautions may cause serious injury, and even death.

DANGER

Do not place naked flames near the yacht. Do not smoke during refuelling or while working on the engine. Carry out refuelling with the engine shut off. Failure to comply with these precautions can cause accidents and injuries.

CAUTION

A frozen **battery** may blow up if used or charged; do not start a yacht with a frozen battery. To prevent the battery from freezing always keep it completely charged.

DANGER

The **battery** releases explosive gases: do not allow sparks or flames to come close to the battery and never smoke near it. If the battery is used or charged in a closed area, check for good ventilation. Do not check the battery charge by short-circuiting the terminals with metal tools.

CAUTION

Do not remove the oil tank **filler cap** when the engine is started, as the pressurised hydraulic system may cause injuries.
Stop the engine before releasing pressure.

CAUTION

The spilling of hydraulic oil under **pressure** may cause injuries: before disconnecting or connecting the hoses, stop the engine and operate the controls to release the residual pressure. Prevent the engine from starting when the hoses are disconnected.

CAUTION

If damaged, the **flexible hydraulic hoses** may cause death, carry out appropriate periodical checks to check for the presence of:

- Damaged fittings;
- Wear of outer coatings as consequence of rubbing;
- Swelling on outer coatings;
- Bent or squashed hoses;
- Fittings not properly located.

CAUTION

Oil is poisonous: do not swallow. The engine oil contains dangerous polluting agents which can generate skin tumours. Handle oil as little as possible and protect your skin with creams and gloves. Any skin that comes into contact with oil must be washed carefully with warm water and soap: do not use petrol, fuel or oil.

CAUTION

Hydraulic oil spraying at high pressure penetrates the skin: do not check for oil leaks with your fingers or allow your face to become too close to them. Use a cardboard blank to verify the possible presence of hydraulic oil. If oil penetrates the skin, ask immediately for a doctor for the relevant treatment.

CAUTION

Clean the **interceptors** to eliminate any deposits of dirt that may affect their efficiency. To reduce the risk of corrosion, retract the interceptors when leaving or going into the roadstead.

CAUTION

Seals and O-rings fitted incorrectly, or damaged or worn out may cause leaks or accidents; replace them immediately except when otherwise prescribed.
Do not use trichlorethane or solvent near O-rings and seals.

CAUTION

During the restoring operations of metallic or non metallic components, wear **safety goggles**. Move away from the area or protect possible flammable materials, which could catch fire from sparks.

DANGER

Hot coolant. When the engine temperature is high, the cooling system is at a high pressure value and this results in liquid coming out when the filler cap is removed.
Therefore, before removing it, wait until the system has cooled down, then turn the plug up to the first notch and release the system's pressure.

2.1.3 Fire prevention rules

DANGER

On all yachts, fire is a major danger. Therefore, all fire prevention measures must be followed scrupulously.

Before steering a yacht, the Captain must be perfectly aware of the following fire prevention measures.

This yacht must always be equipped with portable fire extinguishers positioned as illustrated in the chapter "Arrangement of fire-fighting equipment".

The yacht's Owner and the Captain are directly responsible for:

- Having fire extinguishers and fire-fighting equipment overhauled as scheduled on their labels, and having them replaced, as required by the rules in force, with similar or equivalent or higher capacity ones;
- Informing the crew about the location and use of fire extinguishers and firefighting systems and escape routes;
- Ensuring that fire extinguishers are also available in the passengers' cabins.

CAUTION

The engine room of this yacht is equipped with a fixed fire-fighting system.

WARNING

NEVER:

- To obstruct access to passageways and escape routes;
- Hinder access to safety devices, such as fuel valves, electrical switches, etc.;
- Obstruct access to fire extinguishers stowed inside the lockers;
- Leave the yacht unattended when equipment developing heat is switched on;
- Use naked flames;
- Modify electrical or fuel supply systems, without consulting CUSTOM LINE beforehand;
- Smoke near or when handling flammable materials;
- Stow highly flammable materials (such as fuel, thinners, etc.) in proximity to heat sources, such as engines, galley, etc.;
- Stow flammable material in the engine room. Non-flammable materials may be stowed only if properly rigged, so they do not accidentally come into contact with rotating engine parts, or obstruct access to the engine room.

Keep the bilge clean and inspect it frequently for any oil or fuel leakage.

CAUTION

In case fire breaks out in proximity to electrical equipment, do not use water, but use the manual dry-powder fire extinguishers only. After using the extinguishers, leave and ventilate the area immediately before reapproaching it, in order to prevent asphyxia and physical harm.
Clean out any fire extinguishing powder out very carefully.

In addition to these requirements, CUSTOM LINE recommends the following:

- Avoid smoking in the lower deck, especially in the engine room.
- Avoid dropping liquids in the bilge and keep it clean, especially the engine room. Proceed as follows if there is fuel leakage from the engines or the generators:
  - Stop all engines immediately;
  - Locate the leak cause and, if possible, repair it after closure of supply valves;
  - Dry and clean the bilge before restarting the engines, without draining at sea or in the harbour;
  - Do not stow flammable items in proximity to heat sources, like engines, burners, halogen light, etc..;
  - In case of yacht leak, try to remedy with plugs and/or rags, if possible, from outside;
  - In case a system of the yacht breaks, close all hull valves, locate and repair the leak if possible. Remember to reopen all hull valves not involved.

CAUTION

The Captain of a pleasure yacht must be perfectly aware of the basic fire-fighting techniques and how to use the extinguishers.

In case of fire, follow the procedures described hereunder:

- Keep calm and do not spread panic among the passengers;
- Stop the yacht, close the sea cocks and the drains;
- Set the battery breaker to "OFF";
- Close the air intakes in the engine room;
- Locate the fire and its origin;
- Avoid breathing smoke;
- Extinguish the fire, following standard fire extinguishing techniques.

DANGER

If the yacht sinks, close the fuel and waste water valves if possible.

DANGER

In case of fire on board, try to electrically insulate the area concerned by disconnecting all AC and DC input magneto-thermal switches to avoid feeding fires and short circuits.

Regular and correct maintenance of the systems and prudent behaviour of all passengers are indispensable measures for preventing any risk of fire.

More than 90% of the probability of successfully fighting a fire depends on the ability to prevent and avoid the conditions conducive to its development.
The remaining small percentage depends on the crew's ability to react and, above all, the speed of action.

Nearly all fires, if detected early, can be extinguished easily.
For these reasons, it is necessary to carry out preventive surveys on a regular basis and identify all possible fire sources, and in particular:

- Check the proper operation of all main equipment/systems;
- Visit all compartments and in particular the engine compartment frequently;
- If a system does not work correctly, identify the failure and take the appropriate corrective actions;
- Operate all systems and equipment as specified.

If a fire is detected, identify and remove the cause, if possible, (e.g. in case of a short-circuit, cut-off the electrical system), extinguish the fire promptly and be vigilant to make sure that the fire does not break out again.

CAUTION

The ability to operate the fire extinguishers properly can ensure the success of the operation.
It is vital that the fire fighting operations are performed by people competent in this type of emergencies.
It is in any case necessary to be aware of the minimum fire-prevention and fire-fighting rules; the first defence is to prevent fires before they start spreading.

The following table contains the classification of the fire types:

Comparison between fire classes

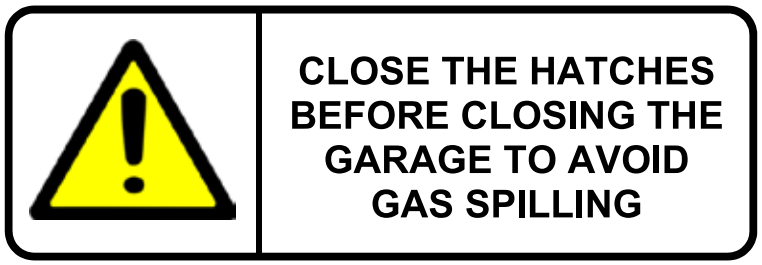
AMERICAN	EUROPE/ AUSTRALIA/ASIA	FUEL/HEAT SOURCE
Class A	Class A	Ordinary fuels
Class B	Class B	Flammable liquids
	Class C	Flammable gases
Class C	Class E	Electric appliances
Class D	Class D	Combustible metals
Class K	Class F	Cooking oil or fat

It is very important to use the correct extinguishing agent according to each fire class; normally, water can be used only for class A fires, together with chemical extinguishing agents (portable or fixed devices).

Each yacht owner/operator/master must be well informed and proficient regarding the measures to be adopted in the event of a fire and the applicable fire-extinguishing methods.

CAUTION

It shall only be possible to open the closing devices (the connecting openings of the bow garage to adjacent internal spaces) if the gas detection system confirms that the garage is free from the presence of dangerous gases.
Therefore, make sure to close the internal doors of the garage compartment before closing it.



WARNING

EXPLOSION HAZARD

Any lithium battery powered device on board must be recharged only in open air areas, connected to a suitable charging system. Also please refer to the device dedicated Use and Maintenance Manual.

2.1.4 International rules for prevention of collisions at sea

The pneumatic hoot (horn) installed on board of the ship, satisfies adequately the requirements prescribed by the regulation against collisions at sea (Colreg 1972). Hereunder please find an off-print of the "International rules for prevention of collisions at sea".

- **Application** (Rule no.1): the current Norms are applicable to all crafts at high sea and to all waters communicating with it, accessible for sea navigation.

- **Responsibility** (Rule no.2): none of the current rules can exempt a craft, its Owner or the crew from the consequences of any negligence of application of the said rules.

- **Definitions** (Rule no. 32):
  - – "one short sound", of the duration of approximately a second;
  - — "prolonged sound", of the duration of four to six seconds;

- **Signals of manoeuvre and warning** (Rule no. 34):
  - – one short sound "I am going starboard";
  - – – two short sounds "I am going to port";
  - – – – three short sounds "I am going backward";
  - — — – two prolonged sounds and a short one "I am going to overtake you starboard";
  - — — – – two prolonged sounds and two short ones "I am going to overtake you port";
  - — – — – one prolonged sound, a short one, a prolonged one and a short one "OK for the overtaking";
  - – – – – – five short sounds "I have doubts about this manoeuvre";
  - — a prolonged sound "craft approaching a channel elbow";
  - — a prolonged sound "craft answering to previous signal".

- **Signals with poor visibility** (Rule n°35 and n°37):
  - — a prolonged sound at two minutes interval "craft at mechanical thrust in fresh way";
  - — — two prolonged sounds with an interval of two seconds and repeated every two minutes "ship with mechanical thrust in navigation, with engines shut-off and without fresh way";
  - — – – a prolonged sound and two short ones at intervals of two minutes "ship out of control or with manoeuvre troubles or towing";
  - — – – – a prolonged sound and three short ones at intervals of two minutes "last ship towed answering to ship towing";
  - – — – a short sound, a prolonged one and a short one "ship riding the anchor giving its position to a ship approaching with hazard of collision";
  - – – – – – five seconds of continuous sound at intervals of one minute "ship riding the anchor giving its position";
  - – – – three short sounds one after the other "craft stranded";
  - – – – – four short sounds "pilot craft in service";
  - ———— a continuous sound "danger and rescue need".

2.2 NOTES ON THE ENVIRONMENT

Environmental pollution is caused by three kinds of polluting agents:
- Water polluters;
- Air polluters;
- Soil polluters.

Non oily and black waters (containing only human organic waste) can be discharged into the open sea. In the harbour area, these must be collected in special tanks and then discharged either by removal at open sea or by means of appropriate fixed shoreside or truck-mounted emptying systems.

Soil pollution is caused by discharging waste at shore.

International regulations concerning boats essentially provides for the following:

- During navigation it is forbidden to discharge any non biodegradable product, either of food or commercial origin, into the open sea.

- In the harbour, normal waste is considered as urban waste that must be hermetically sealed in plastic bags and thrown into waste dumpsters.

- Special waste must be disposed of into suitable containers or, if these are not available, it must be delivered to local waste disposing areas, in compliance with the rules in force, issued by the local Port Authority.

- The following waste is considered special waste:
  - Water and oily mixtures (e.g.: Bilge water)
  - Oils (fuel, additives and lubricants)
  - Poisonous chemical substances (like battery acids, paints, thinners and the relevant containers)
  - Spray cans containing C.F.C. Gas
  - Batteries
  - Spent flares
  - Expired pharmaceutical products
  - Products containing lead or asbestos
  - Etc.

- Fuel and oil leaks.

- Waste discharge and disposal.

- Excessive noise.

- Wake / wake from board.

- Exhaust fumes.

- Paints, detergents and other agents.

Please remember that, according to legislation, until such waste is delivered to suitable disposal areas, you will be considered as possessors and therefore indictable in case of unlawful discharge. Should specific cases be missing in the harbour area, the Authority in charge for the disposal is the Port Authority section "Waste Disposal".

2.2.1 Regulations for waste disposal

MARPOL 73/78 is the international standard governing the prevention of pollution from boats.

Those standards apply to all boats with no limits on tonnage and service, therefore including all pleasure yachts.
The rules cover the entire Mediterranean.

WARNING
When moored in a harbour, always check that your yacht is not a source of pollution. The environment must be respected and safeguarded, preventing risks for the life of aquatic flora and fauna. It is good practice to leave no trace behind you, to respect laws on safety and environmental protection.
Do not discharge bilge waste, oily residues, fuel or other liquids overboard. Dispose of solid waste and old engine oil in the containers provided at mooring points.

WARNING
During navigation, it is always necessary to behave suitably and to respect the safety and the comfort of your guests and of persons on nearby boats. Therefore:
- Avoid excessive noise;
- Do not leave the engines running for long periods without moving off;
- Do not sail at high speed or beyond the permitted limits when leaving or entering harbours, marinas, etc.., To prevent causing excessive wash or wave motion.

CAUTION
It is absolutely prohibited to throw into the sea: plastic materials, synthetic cables, fishing nets, waste bags, floating packaging materials, cordage, paper, rags, glass, metals, bottles, galley utensils and similar. Non-comminuted or unground food waste can only be disposed of beyond 12 miles.

CAUTION
Within 12 nautical miles from the coast it is forbidden to discharge into the sea the black water: you must keep off the drain pump, excluding the automatic activation if present.

CAUTION
It is forbidden to use toilets or holding tanks near the shore or in any prohibited area. Use the facilities of the suction port or marina to empty the holding tank before leaving port.

ENVIRONMENT
Always consider and comply with local environmental laws and international marine pollution (MARPOL).
Also, you must always respect the rules of good conduct yacht.

Although discharge at sea, except in special areas, of a wide range of shipgenerated garbage is permitted at specified distances from the nearest land, preference should be given to disposal at shore reception facilities.

CAUTION

When garbage is mixed with other harmful substances having different disposal or discharge requirements, the more stringent disposal requirements apply.

2.3 SAFETY EQUIPMENT

This equipment has to be kept in its original place, so as to be easily available in case of emergency.

CAUTION
The above-mentioned safety systems must comply with existing local and international navigation regulations, and which must be periodically inspected and maintained by specialized companies and qualified technical personnel, prior to the expiration date indicated on the systems.

All persons on board must know the location and use of the safety equipment.

CAUTION
The diagram shows the position indicated by the manufacturer for safety equipment; therefore represents a useful guide the placement and number.
To adapt and place the safety equipment in accordance with local, national, and international laws.

CAUTION
Please note that the above mentioned safety systems must comply with local and international navigation laws.

CAUTION
The Captain is required to inform the crew on the yacht about the safety equipment, whether in case of fire or in case of sinking and listing.

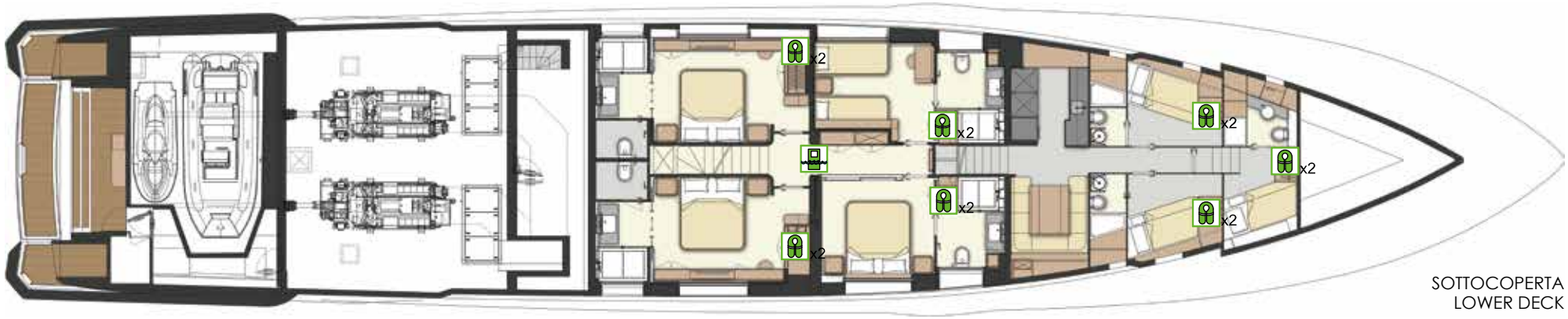
CAUTION
Make sure that safety equipment is perfectly efficient and available to each passenger.

2.3.1 Arrangement of safety equipment

PONTE SOLE
SUN DECK

PONTE SUPERIORE
UPPER DECK

COPERTA
MAIN DECK



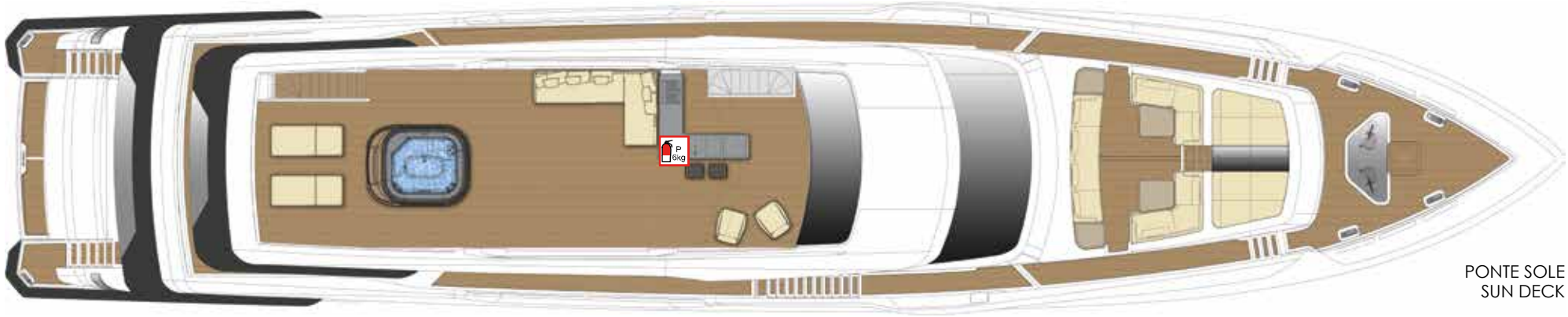
SOTTOCOPERTA
LOWER DECK

ICONA ICON	DESCRIZIONE DESCRIPTION	QTA QTY
	Zattera 10 persone Life raft 10 persons	3
	Salvagente con cima Lifebuoys with lifeline	2
	Salvagente con luce e fumo Lifebuoys with light and smoke	2
	Giubbotti con luce e fischio per adulti Life jackets light and whistle for adult	20
	Giubbotti con luce e fischio per bambini Life jackets light and whistle for children	2
	Giubbotti gonfiabili Inflatable life jackets	2
	Tute da immersione Immersion suits	20
	Tute termiche da immersione per bambini Thermal immersion suits for children	2
	Cassetta Primo Soccorso Medical store	1

ICONA ICON	DESCRIZIONE DESCRIPTION	QTA QTY
	Kit di Sopravvivenza Grab bag	1
	EPIRB 406 Mhz a rilascio idrostatico EPIRB 406 Mhz with hydrostatic release	1
	Radar trasponder Radar trasponder	1
	Sbarco/Scala Pilota Disembarkation/Pilot Ladder	1
	Lancia cime Line throwing device	4
	Radiotelefono GMDSS portatile Portable GMDSS radiotelephone	2
	Razzi di segnalazione con paracadute Rocket parachute flares	6
	Porta stagna Watertight door	1
	Imbarazione di Soccorso Rescue boat	1

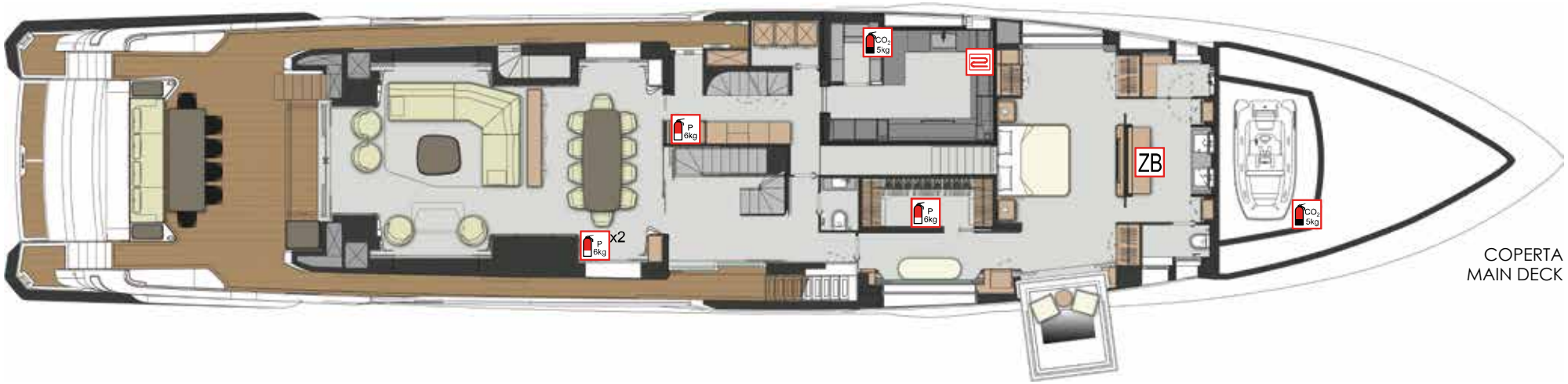
2.3.2 Arrangement of fire prevention equipment

Refer to Chapters 2.3.3 and 2.3.4 for more information on using portable fire extinguishers.



PONTE SOLE
SUN DECK

PONTE SUPERIORE
UPPER DECK



COPERTA
MAIN DECK

SOTTOCOPERTA
LOWER DECK

ICONA ICON	DESCRIZIONE DESCRIPTION	QTA QTY	CLASSE ANTINCENDIO ESTINTORE EXTINGUISHER FIRE CLASS
FL	Armadio completo da pompiere Ogni kit contiene: 1 - Completo da pompiere 1 - Apparato di respirazione 3 - Bombole per la respirazione 1 - Piccola ascia 1 - Torcia di emergenza 1 - Pannello Radiocomunicazioni Fire fighter outfit locker Each fireman kit contains: 1 - Fireman outfit 1 - Breathing apparatus 3 - Breathing bottles 1 - Small axe 1 - Emergency torch 1 - Comunication Panel	2	/
P 6kg	Estintore a polvere 6Kg 1 - Garage di poppa 2 - Cabine ospiti 2 - Area/cabine equipaggio 2 - Salone ponte coperta 1 - Lobby ponte coperta 1 - Cabina armatore 2 - Salone ponte superiore 1 - Cabina comandante 1 - Vasca idromassaggio Powder 6Kg fire extinguisher 1 - Aft garage 2 - Guest cabins 2 - Crew mess / crew cabins 2 - Salon main deck 1 - Lobby main deck 1 - Master cabin 2 - Salon upper deck 1 - Captain cabin 1 - Minipool	13	34A/233B/C

ICONA ICON	DESCRIZIONE DESCRIPTION	QTA QTY	CLASSE ANTINCENDIO ESTINTORE EXTINGUISHER FIRE CLASS
CO_2 5kg	Estintore 5Kg CO2 1 - Beach area 1 - Sala impianti 3 - Sala macchine 1 - Cucina 1 - Garage di prua 1 - Ponte sole CO2 5Kg fire extinguisher 1 - Beach area 1 - Engine Control room 3 - Engine room 1 - Galley 1 - Forward garage 1 - Bridge	8	113B
F 9L	Estintore a schiuma 9Kg 1 - Beach area 4 - Sala macchine Foam 9Kg fire extinguisher 1 - Beach area 4 - Engine room	5	A233/B
	Coperta antincendio 1 - Cucina 1 - Cabina comandante Fire blanket 1 - Galley 1 - aptain’s cabin	2	/

DANGER

CO2 extinguisher uses $_{CO2H0.5x}$ as an extinguishing medium it shall be used only to fight electric or galley fires.

DANGER

To avoid asphyxiation after discharge leave the area immediately and ventilate before entering.

2.3.3 Extinguishers fire class

The following table contains the classification of the fire types:

SYMBOL	FIRE CLASS	DESCRIPTION	EXTINGUISHING
	**A**	Solid fuels (Wood, paper, coal, etc.)	Water, foam, chemical powders.
	**B**	Flammable liquids (bezel, diesel, alcohol, etc.)	Foam, carbon dioxide, chemical powders.
	**C**	Flammable gases (propane gas, methane, hydrogen, etc.)	Carbon dioxide, chemical powders, halogenated hydrocarbons.

It is very important to use the correct extinguishing agent according to each fire class; normally, water can be used only for class A fires, together with chemical extinguishing agents (portable or fixed devices).

Refer to Chapters 2.3.2 and 2.3.4 for more information on using portable fire extinguishers.

2.3.4 Portable fire extinguishers

- Periodically check the state of charge and check before embarking navigation.
- Make sure not to have the discharge nozzle facing toward you or other personnel in the vicinity.
- Be cautious when using the extinguisher to fight electrical panels or equipment fires, never use water.
- Direct the discharge nozzle towards the fire bottom and open the discharge valve.
- Try to extinguish the flames and to cool down the equipment.
- After using the extinguisher to fight fire in closed spaces, ventilate the room carefully, prior to enter it, and remove powder deposits.
- Use portable fire extinguisher as specified in the chapters 2.3.2 and 2.3.3.

DANGER
The person in charge of the ship must make sure that all passengers know the locations the fire extinguishers.

2.3.5 Self-inflatable life raft

WARNING
The two forward life raft will need to be manually launched from the aft sun deck and not at its current location to avoid a possible breakage of the windshield.

- Shut OFF the engines and wear the life jackets;
- Unwind the line for 3 to 4 meters and throw the liferaft overboard from the leeward side;
- Unwind the line completely, then take a strong pull to; the raft is opened within a couple of minutes.

WARNING
Always maintain the dry escape routes, unobstructed and accessible.

- Board, by jumping directly from the ship into the life raft;
- Embark clothes and supplies;
- If somebody falls overboard, help him/her to climb into the raft; throw the life buoy with line, if necessary;
- Make sure that everybody is on board, take the knife out of the sheath, and cut the line that ties the life raft to the yacht;
- Move quickly away from the yacht using the oars;
- When the overpressure valves have stopped hissing, close them by tightening the safety plugs.

CAUTION
The validity of the self-inflatable life raft is limited; check its expiry on the certificate. The raft can be overhauled by a reliable entity extending its validity.
Some sanctions are provided if this rule is not respected.

DANGER

If the life raft opens upside down, jump into the water and roll it over, by pulling the special rope. If the life raft does not open after the first pull, repeat the operation two or three times. If the life raft still does not open, jump into the water and, keeping a hand on the container, pull the emergency line strongly. If the life raft still does not open, cut the container open with a knife and operate the opening device directly (by pulling the life line).

Differently from a lifeboat, the life raft cannot self-propel to the shore, unless blown there by favourable winds. Oars are only useful for small manoeuvres.

Oars are only useful for small manoeuvres.

- The life raft is fitted with stabilisers and a floating anchor, for improving its stability and drift. The stabilisers give stability to the raft. Keep the floating anchor in water. The anchor prevents excessively rapid drifts.
- When the life raft is towed, weigh the floating anchor on board.
- If the waves are high and the wind is strong, the life raft may capsize; in such case, move the personnel weight to the side that tends to rise.
- If the life raft does capsize, roll it over and return on board. If the sea is rough, it is advisable to wear the life jackets all the time. If the raft deflates, inflate it again from time to time using the relevant inflating device provided with the raft.
- If air blows out of a hole, use one of the plugs stowed inside the repair kit.
- You can perform minor repairs, by using the glue provided with the kit. Clean the torn area and the repair pad, spread both with the glue. Hold the pad for thirty seconds, pressing from the centre outwards, in order to eliminate any air bubbles.
- Hold down for a little time and then inflate again, after one hour.

2.3.6 Individual life jacket

- All passengers must be aware of the storage location of their individual lifesaver.
- The captain shall ensure that passengers are informed about the use of the life jacket:
  - As wear it and stop to the body;
  - Where lies the whistle.

Wear the life jacket as follows:

1. Position life jacket with retroreflective in front.
2. Put the belt around the vaist and lock the buckle. to open press the quick relaise red button.
3. Pull the webbing belt right.
4. At night activate light.

2.3.7 Life buoy

- All passengers must know the stowing place of life buoy.
- The Captain must make sure that all crew member and passengers know how to use the life buoy:
  - How and where to throw it;
  - How to behave in case of "man overboard".

The most suitable method for using an annular lifebuoy in the case of a rescue is the classic "launch".

It is a technique that is only suitable over short distances with an unfortunate conscious and not in panic.
Highly not recommended in presence of sea formed or breakers.
Before launching the lifebuoy at sea, make sure that you have tightened the line securely at a yacht structure that is strong and capable of supporting tension.

Throw a life buoy, even if the person is already wearing a life jacket, or other inflatable rescue equipment.
Launch the lifebelt as close as possible to the person to be recovered.

CAUTION
Do not hit the person to be recovered with the life buoy.

2.3.8 Pilot ladder

It is a rope ladder with wooden steps that normally serves as a rescue device subjected to standards and construction specifications every 10 steps has a 2-metre joist (spreader) between them to prevent them from twisting.

It is stowed in the bow garage of your yacht.

Install the pilot ladder near the side openings of the yacht, which shall be kept closed, by attaching the straps to the d-ring provided.

2.3.9 Line thrower

Your yacht is equipped with a line thrower.

It can be used in all situations where a line is required to be passed accurately and quickly, these include:

- All line-throwing operations at sea between vassels, ship to shore, shore to ship and shore based rescue services.
- Rescue of swimmers in distress,
- Line carrying across obstacles and rough terrain.

The device has a throwing rang of between 230m and 250m.

Operation for use:

1. Wear Personal Safety Equipment (gloves, glasses, ear protection, helmet).
2. Remove the front cover and point in the desired flight direction.
3. Pull out safety pin.
4. Aim over the top of target. Be prepared for recoil.
5. Turn grip to left or right to fire.
6. If misfire occurs hold unit in firing position for at least 60 seconds, then dispose of overboard.

DANGER
Ejects rocket projectile - do not point at people or property.

DANGER
Do not fire in a confined space. Keep out of reach of children.
For emergency use at sea.

WARNING
Do not use after expiry date.

CAUTION
If damaged or dented do not use.
Keep away from source of heat.

2.3.10 First aid kit

The first aid box must be kept on board of class A crafts qualified for navigation“ with no limits from the coast”.
The container must be rigid, floating and with watertight closure.

ENVIRONMENT
It is forbidden to discard medicines at sea, even if expired. Treat medicines as special waste and therefore in accordance with the disposal procedures envisaged by the Country in which you are staying/ transiting.

This is the minimum quantity of medicines recommended for the Owner to keep on board:

- Disinfectant for external use;
- Ammonia;
- Bandages of various sizes;
- Plasters;
- Medicated plasters;
- Cotton wool;
- Scissors;
- Compressed hydrophilic gauze of various sizes;
- Compressed Vaseline gauze of various sizes;
- Tourniquet;
- Splints for fractures.

DANGER
Remember to check the expiry date and **availability** of the products contained in the first aid box at regular intervals.
Remember to store those medicines, which need to be kept in cool places in the fridge. Inform all passengers of this.
Keep the first aid box in a place free from moisture and away from heat sources, easily accessible, quickly reachable in case of need and far from the reach of children.

2.3.11 Signalling rockets

Pleasure yacht are obligated to carry 4 manual rockets with red light and 4 manual orange smoke signals as required.
Always verify the legislation of the Country in whose waters the yacht is going to navigate.

- The signalling rockets have a limited lifetime; it is also necessary to check their expiry date and eventually to replace them.
- The floating smoke signals, visible up to 4 km (2,5 mi), have to be used with the daylight, to indicate the correct position.
- The red light rockets, visible up to 10 km (6,2 mi), are designed for night use, but they can also be seen during the day.
- Before using the signalling rockets, always wait for the arrival of an air plane or to see persons on the shore or on other crafts.
- Store the signalling rockets far from flammable liquids and from other fuels.
- As the content of the signalling rockets absorbs the moisture, make sure to have them located in a dry and accessible place.
- All persons boarded must know the place of the signalling rockets and the method of use.
- Carefully follow the activation instruction for all signalling rockets.
- Each month, and anyway before each navigation, check that they can be used immediately without obstacles.

DANGER
Keep the signalling rockets far from heat sources, such as flammable liquids or naked flames, and out of the reach of children.

DANGER
Once the signalling rocket has been lit, never direct it towards persons, there is a risk of burns and scalds.

WARNING
The signalling rockets have a limited lifetime, indicated on their containers. Once expired, contact the rockets suppliers which offer a disposal service. Do not light them unless necessary, because they can activate the Emergency Services.

2.3.12 Removable coaming

The yacht is equipped with a removable coaming to be installed in the upper deck saloon door.
It has the function to prevent the access of the water into the internal rooms of the yacht in case of formed sea.

WARNING
Always install the removable coaming before weigh anchor and start navigation.

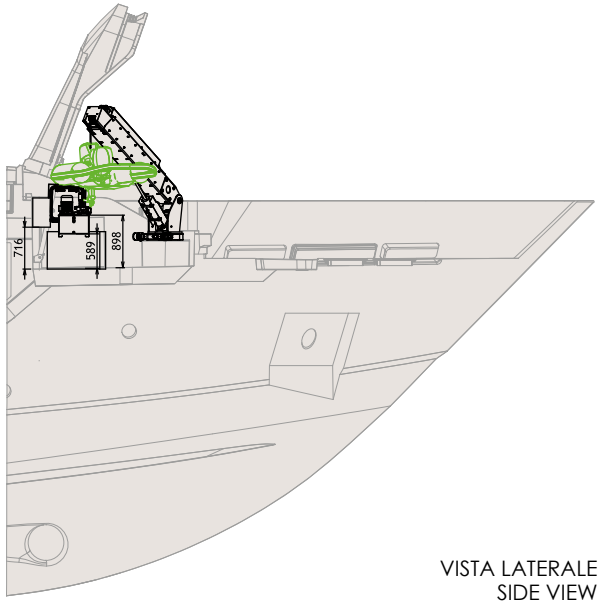
2.3.13 Procedure for launching a lifeboat

A lifeboat can be installed in the bow garage of your yacht.

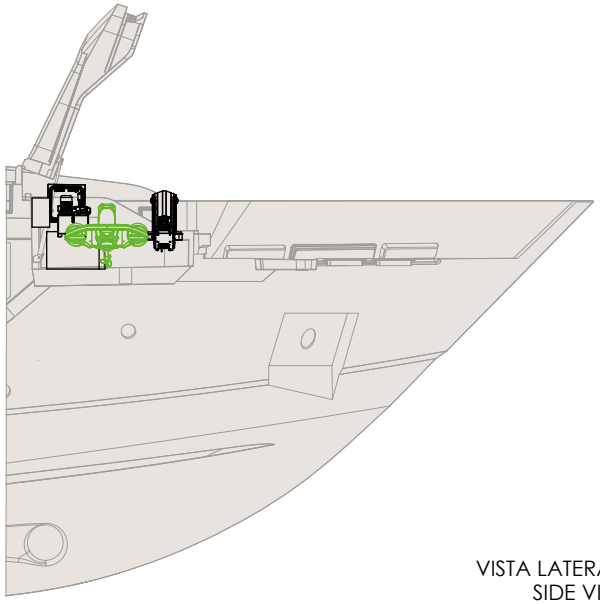
The launch and towing of the lifeboat takes place thanks to a hydraulic crane positioned in the fore garage.

The crane is moved thanks to an electro-hydraulic unit that pumps oil inside the circuit.

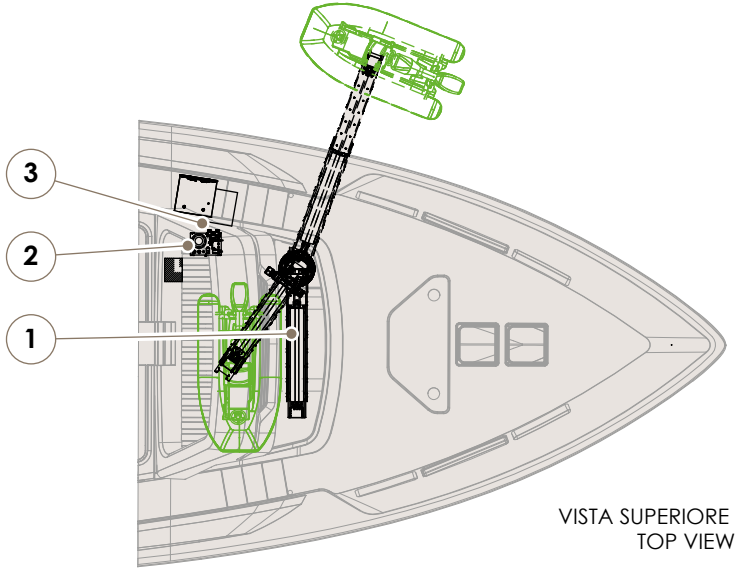
If there is no power supply, it is possible to move the crane thanks to a dedicated generator installed in a room adjacent to the fore garage.



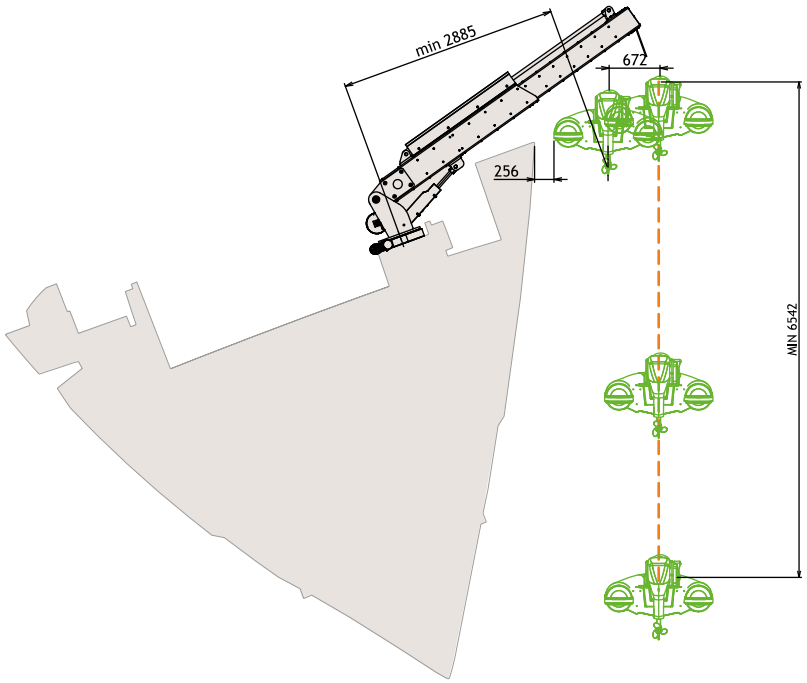
VISTA LATERALE
SIDE VIEW



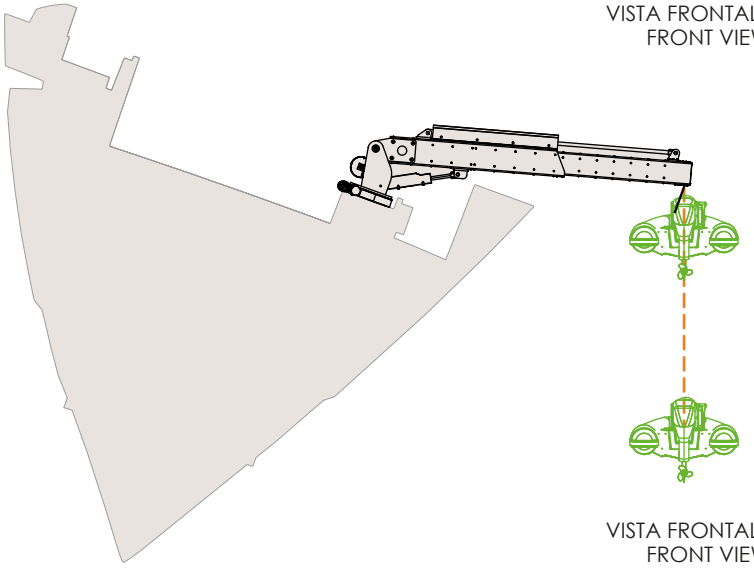
VISTA LATERALE
SIDE VIEW



VISTA SUPERIORE
TOP VIEW



VISTA FRONTALE
FRONT VIEW



VISTA FRONTALE
FRONT VIEW

ICONA ICON	DESCRIZIONE DESCRIPTION
1	Gruetta di salvataggio Rescue boat
2	Centralina elettroidraulica Electrohydraulic unit
3	Gruppo elettrogeno Power unit

2.3.14 Sealed compartments

Your yacht is equipped with a watertight sliding door located at the entrance of the aft VIP cabins.

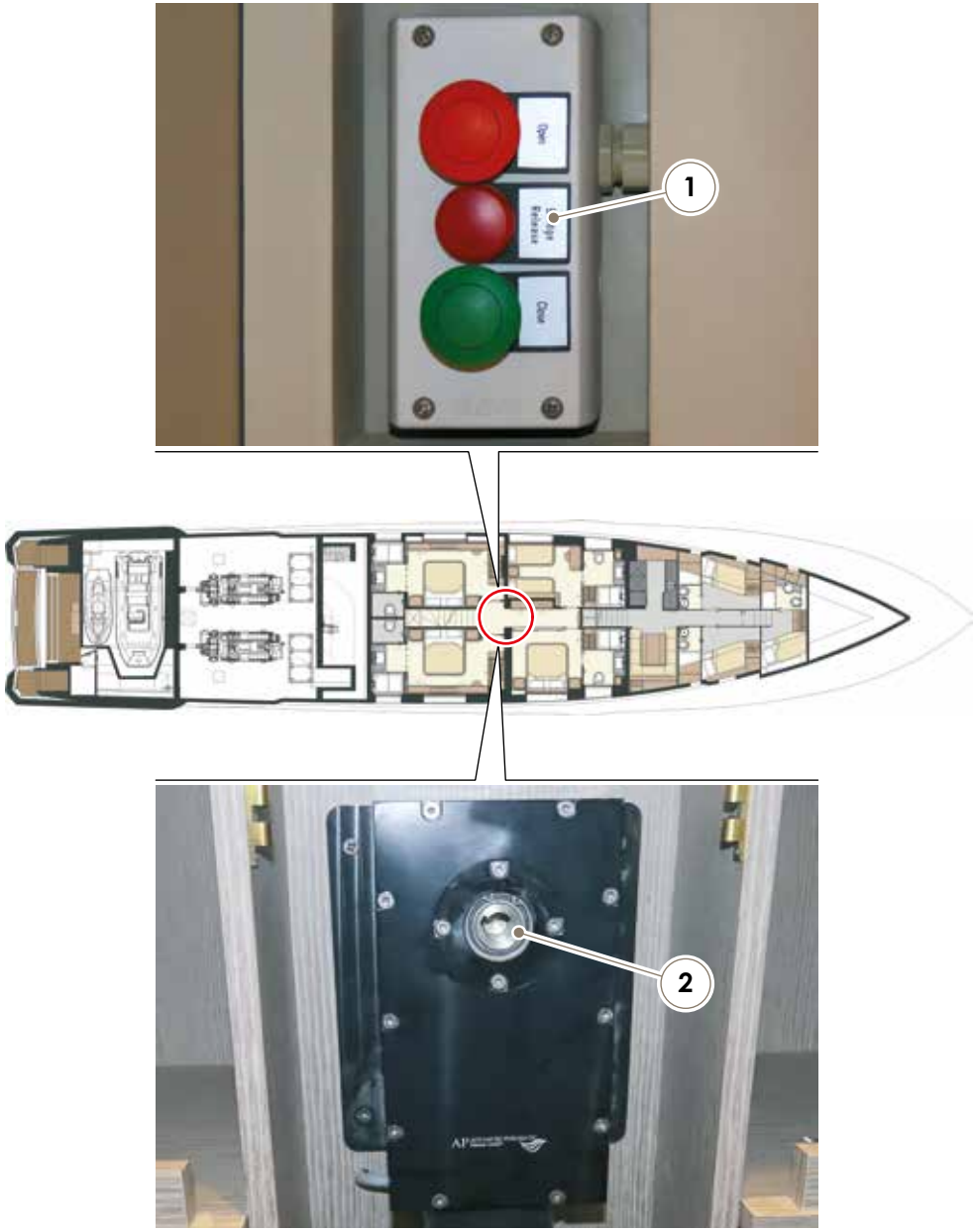
In case of flooding, the door close to create an additional watertight compartment.

The door can be moved with the relevant push-button panel (**1**).

In case of a power failure, the door can be moved by using the corresponding jack (**2**).

When using a watertight door that has been closed, regardless of the closing mode, both local controls – one on each side of the bulkhead – must kept in the "open" position while passing through the door. This can be done by first fully opening the door with the nearby control with one hand, keeping the door fully open until the passage has been completed by opening the control on the far side and using the control on the far side.

Unaccompanied persons must have both hands free to operate the controls and must never attempt to carry any load without assistance. Supervision should therefore be exercised over any work that requires the movement of tools, parts or materials through a door. This will actually make it an operation to be carried out with two people – one to operate the door and another one to carry the load.



2.3.15 Deadlight installation

During bad weather condition, deadlights for portlights and windows must be installed according to Captain's willing.

Deadlights for portlights:
A deadlight for each portlight must be located in every crew cabin.
Deadlights must be stored in a note position and readily usable.

Dedlight for windows:
VIP and guest cabins are provided with large deadlights stored under the bed.
Deadlights are to be installed on cabins' and restroom's window.

To install the deadlights, follow the procedure:

- Remove the protective cups on the anchoring points on the window's frame;
- Extract the deadlights form their covers;
- Install the deadlights according to the instructions (each deadlight is labelled as per below picture);
- Secure the deadlights using the bolts provided in each cabin.

2.4 MAN OVERBOARD RECOVERY

Recover a man overboard before possible hypothermia or drowning. Rescue is a combination of actions: reach the man overboard, establish a contact and bring him/her on board.

- Keep a visual contact with the man overboard.
- Slow down and go towards the man overboard. At night, direct the best light source available towards the man overboard.
- Launch the life buoy into the sea, towards the man overboard, and fasten it to the yacht by means of a line. It shall be used as a further reference to the rescuers.
- When approaching the man overboard, stop the yacht or slow down.
- When you are near the man overboard, stop the engines with the gear engaged, in order to avoid that the propellers continue rotating.

Help the man overboard board the yacht.

NOTE
If the victim presents drowning symptoms, give specific assistance.
In case of serious danger, immediately make a distress call.

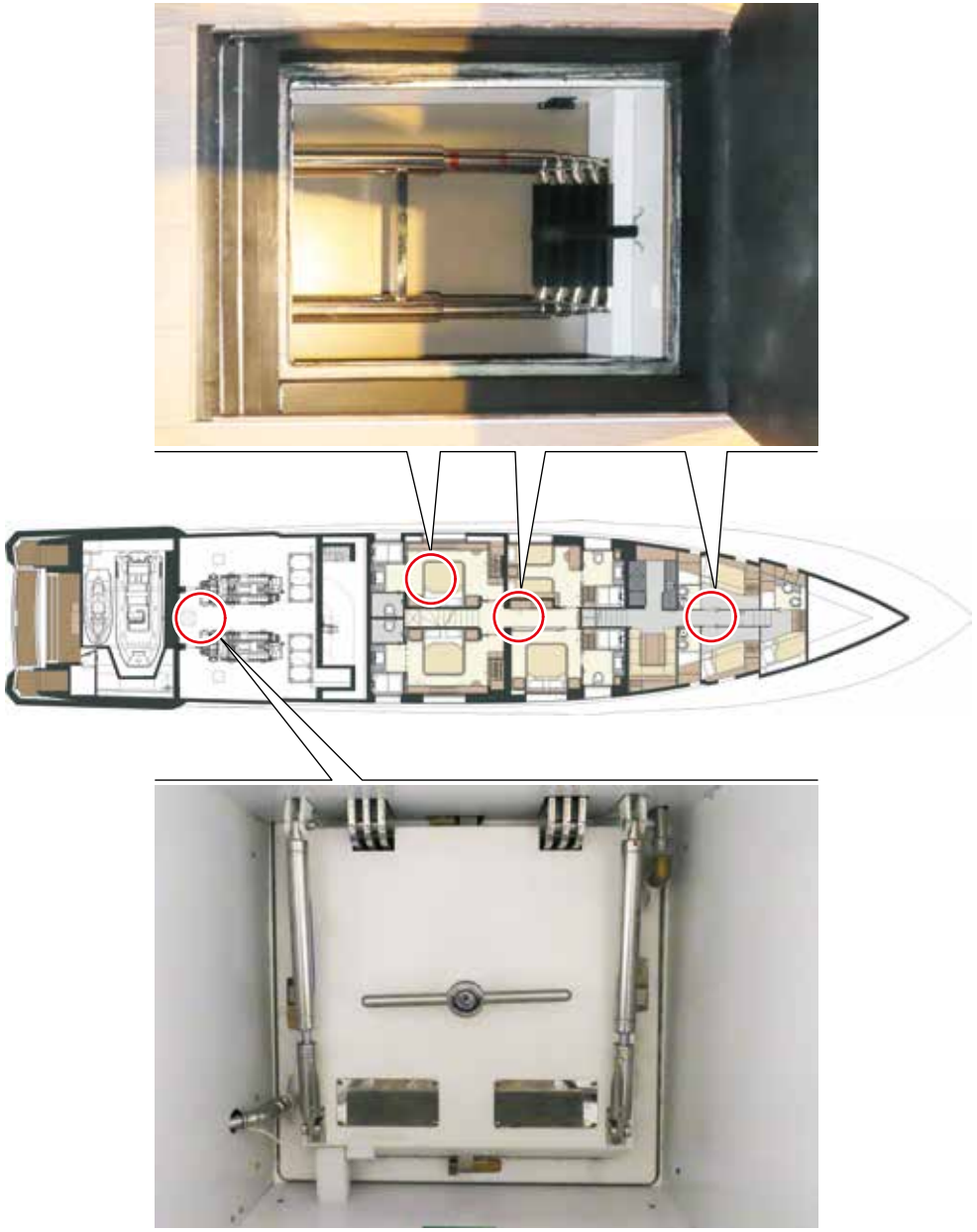
2.5 ESCAPE ROUTES

In order to deal with the different emergency situations that could require the abandonment of the yacht (fire, collision with sinking hazard etc.) in the quickest and safest way, the rules in force require an "escape plan" informing about the safest and most secure, as well as the quickest, paths (from any yacht area) for taking shelter and reaching the muster stations, outdoors, from which it will be easier to leave the yacht.

WARNING
Always keep the escape routes, dry, free and accessible.

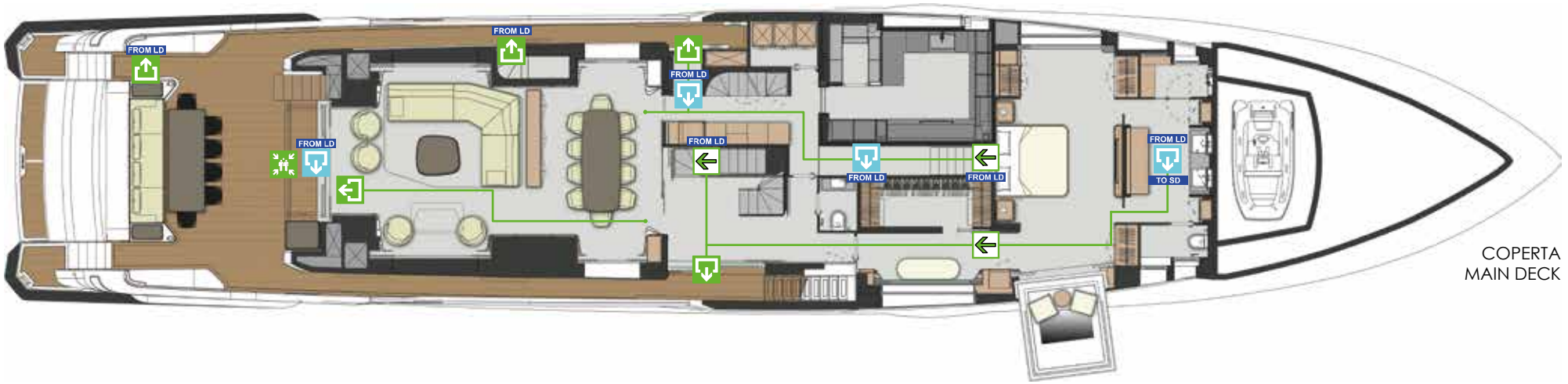
DANGER
The various yacht's areas have more than one escape route.
It is therefore necessary, according to the nature and position of the danger or fire source, to choose the safest and most suitable escape route very carefully.

DANGER
For safety reasons the watertight hatches, giving access to the technical room and to the engine room, must be kept closed in any occasion and situation. They must be open only during the passage.

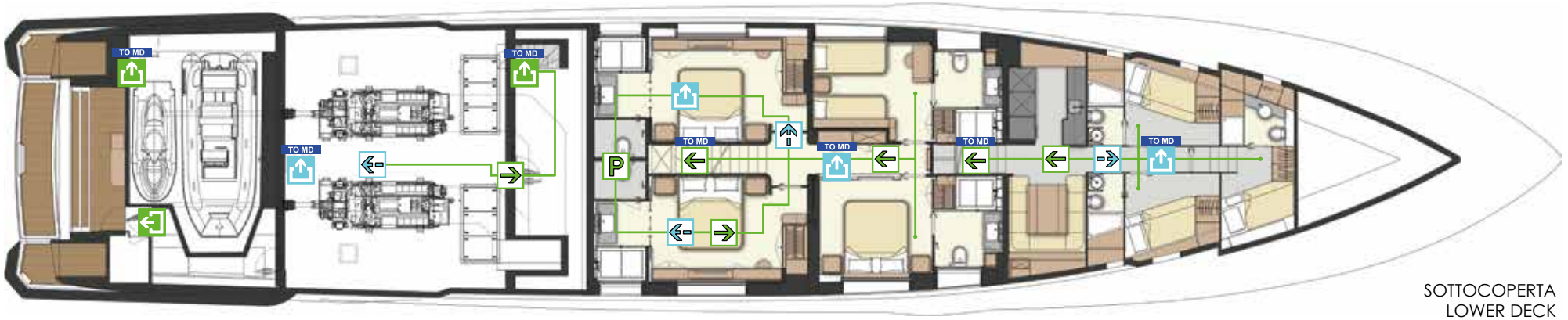


PONTE SOLE
SUN DECK

PONTE SUPERIORE
UPPER DECK



COPERTA
MAIN DECK



SOTTOCOPERTA
LOWER DECK

ICONA ICON	DESCRIZIONE DESCRIPTION
	Passaggio per un altra stanza Passage to another room
	Via di fuga primaria Primary escape route
	Via di fuga secondaria Secondary escape route
	Sfuggita principale Primary escape passage
	Sfuggita secondaria Secondary escape passage
	Punto di raccolta Muster station

2.5.1 Escape route use

From the owner's cabin or lower deck rooms, it is necessary to use secondary escapes:

1. Pull the belt to remove the ceiling panel to cover the escape.
2. Disengage and extend the escape staircase for escape from the room.
3. Open the escape route by using the release handles.

2.5.2 Abandonment of the yacht

When you must abandon the yacht, swim against the current or windward.
The fuel leaks float in the direction of the current and can catch fire.
When you have taken shelter, count the person present on the yacht and help people in need.
Take advantage of the distress call.

Keep all people gathered in order to facilitate the rescue operation.

2.5.3 Escape from aft garage

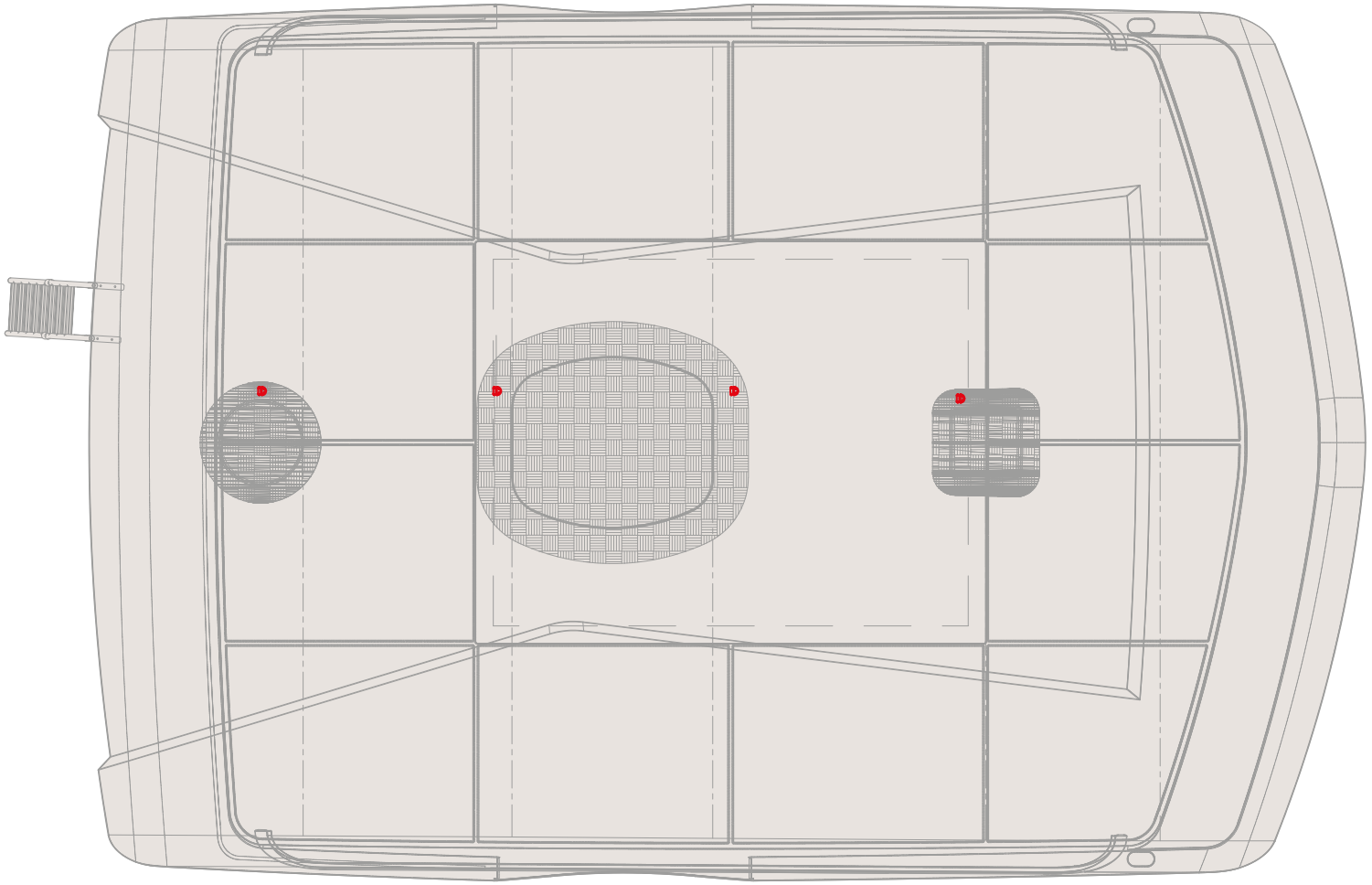
In emergency, escape through the dedicated hatch located in the beach area, port side.

2.6 HOOKING POINTS

On board the yacht, in addition to the perimeter handrails, hooking points were provided for safe movement.

In order to access the hard top, the telescopic ladder supplied must be installed.

WARNING
Access the Hard Top only with safety belt by qualified / trained technical personnel for work at height.



VISTA DALL'ALTO
TOP VIEW

ITEM	DESCRIZIONE - DESCRIPTION
	Occhiello pieghevole Folding pad eye

2.7 FIRE-FIGHTING SYSTEM

The engine room is protected by its own automatic or manual fire-fighting system that uses HFC227 gas as an extinguishing agent.
The manual discharge can be activated using the tie rod on the stairs leading to the control room.

In case of fire in the engine room or in the technical room, operate as follows:

- Stop the engines (two) by operating the emergency stop buttons on the upper deck helm station;
- Turn OFF the battery breakers and all magneto-thermal switches of AC uses;
- Cut-off the engine and generator fuel supply by pulling the tie rods;
- Close the shutters of the engine room;
- Cut off the shutters, air extractors and fuel transfer pump by means;
- Make sure that the engine room is clear of personnel;
- Break the protection on fire-fighting system tie rods;
- Pull the tie rod which controls the discharge of the HFC227 extinguisher;
- If the fire breaks out underway, perform the distress call "Mayday"; if the yacht is in the harbour, advise the Port Authority and nearby boats and evacuate all unnecessary personnel.

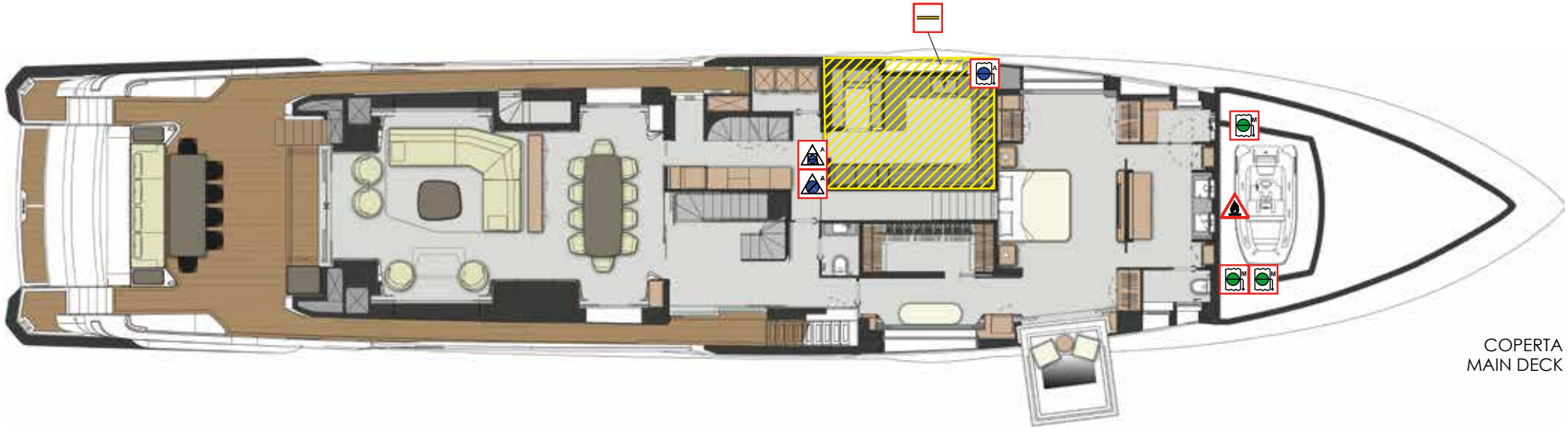
WARNING
Before activating the fire-fighting system, make sure nobody is inside the engine room and garage.
Before entering the engine room, make sure that the fire has been extinguished, then ventilate the room for a long time by opening the hatches and carefully remove the residues.

WARNING
Do not open access to the engine room and systems compartment until the fire has been definitely extinguished.

CAUTION
The garage communication door to the technical compartment may only be opened if the gas detection system confirms that the garage is free of hazardous gases.

2.7.1 Fire-fighting system

PONTE SUPERIORE
UPPER DECK



COPERTA
MAIN DECK

SOTTOCOPERTA
LOWER DECK

ICONA ICON	DESCRIZIONE DESCRIPTION	QTA QTY
FM200	Spazio protetto da FM200 FM200 protected space	1
FM200	Unità FM200 FM200 unit	1
FM200	Stazione rilascio remoto FM200 FM200 remote release station	1
	Allarme acustico e luminoso FM200 FM200 Acoustic and flashing alarms	2
A	Controllo remoto serranda tagliafuoco cucina Remote control fire dampers galley	1
A	Arresto remoto ventilazione cucina Remote ventilation shut-off galley	1
A	Serranda tagliafuoco cucina Fire damper galley	1

ICONA ICON	DESCRIZIONE DESCRIPTION			QTA QTY
M	Controllo remoto serranda tagliafuoco Remote control fire damper	Garage	Prua Aft	3
			Poppa Forward	3
M	Arresto remoto ventilazione Remote ventilation shut-off	Sala Macchine Engine Room		1
		Garage Prua-Poppa Aft - Forward Garage		1
M	Serranda agliafuoco Fire damper	Garage	Prua Aft	3
			Poppa Forward	3
		Sala Macchine Engine Room		4

ICONA ICON	DESCRIZIONE DESCRIPTION	QTA QTY
	Valvole chiusura carburante Fuel quick closing valves	4
	Stoccaggio liquidi infiammabili Space for carriage flammable liquids	2
	Divisione di Classe A A-class division	1
	Divisione di Classe B B-class division	1
FIRE AND SAFETY PLAN	Piano Anticendio e Sicurezza Fire and Safety Plan	2
WT	Porta antincendio a tenuta stagna di Classe A A-Class watertight fire door	2
	Arresto remoto pompa carburante Fuel pump remote shut-off	1

2.7.2 Engine room fire-fighting system maintenance

- Have the system overhauled by a qualified service centre according the manufacturer's instructions. The technician who performs maintenance should attach a tag indicating the date of the check to the system.
- Check the discharge indicator before use, to make sure that the fixed fire-fighting system has not been discharged.
- The fixed fire-fighting systems must be checked at least once a month and in any case, before each navigation.
  a. For corrosion.
  b. To make sure that the access to the controls is not hindered.
  c. To make sure that the cylinders are firmly sitting.
  d. To make sure that the pulling cables are not broken, loose, damaged or twisted.
  e. To make sure that the cable connections are fastened properly.
  f. To make sure that the distribution pipe connections are firmly fastened and that the discharge nozzles are not clogged.
  g. To make sure that the system has not discharged.

CAUTION

Accidental discharge of the chemical agents for fire extinguishing during handling or installation may cause serious injuries. The chemical agents for extinguishing fires and the residues of a discharge system are toxic. Protect eyes and skin during installation or maintenance of the fire-fighting systems.

CAUTION

The extinguisher CONTAINS TOXIC CONCENTRATED CHEMICAL AGENTS AND SUB PRODUCTS FOR FIRE FIGHTING. Avoid inhaling fumes or long exposure to them.
THE ACCIDENTAL DRAIN DURING USE OR INSTALLATION CAN CAUSE SERIOUS INJURIES. Never let it drop down. Keep it far from extreme heat.

DANGER

The fire-extinguishing cylinder/s has a safety pin. Check that the above-mentioned pin has actually been removed. If this is not the case, should fire spread out, the cylinder/s would be jammed and would not discharge with consequent possibility of heavy damages to your yacht up to its sinking.

DANGER

The presence of the safety pin inserted prevents the activation of the manual discharge (by means of tie rods).

CAUTION

Carefully read the instruction manual.
Before attempting any installation, removal, activation or maintenance of this device.

CAUTION

During maintenance operations, pay attention not to break the flasks unintentionally, in order to prevent accidental cylinder releases.

CAUTION

Check that at environment temperature the cylinders pressure gauge is set to correct actuation position indicated by the supplier.

2.7.3 Restoring the fire-fighting system in the engine room

If the fire-fighting system of the engine room has been activated and a fire has been extinguished, it is necessary to restore the essential conditions for navigation, in order to quickly reach the nearest harbour in which to carry out the due checks.
To resume navigation, the ventilation system of the engine room and the fuel system of the propulsion engines must be brought back to normal working condition.

DANGER

Before entering the engine room, ventilate the room properly, to avoid risks due to high temperatures and noxious gases suspended in the air.

DANGER

These operations have to be carried out directly from the engine room; therefore before carrying out any operation, carefully read the safety instructions in this Manual.

DANGER

Resetting the fire-fighting system, with the aim of resuming navigation is a recommended operation only in case the fire source has not caused damage to the yacht's structure or to important devices of the same.
In such a case, or should you have any doubt, it is essential, to wait for rescue without resuming navigation.

WARNING

Please note that once the fire fighting system has been restored, the HFC227 fire extinguisher will be discharged and will no longer be effective in the event of a new fire. Therefore, once the fire extinguisher has been returned to port, it must be recharged immediately by authorised personnel.

To allow the starting of the propulsion engines, it is necessary to manually activate the engine supply valves, located on the fuel tank in the engine room.

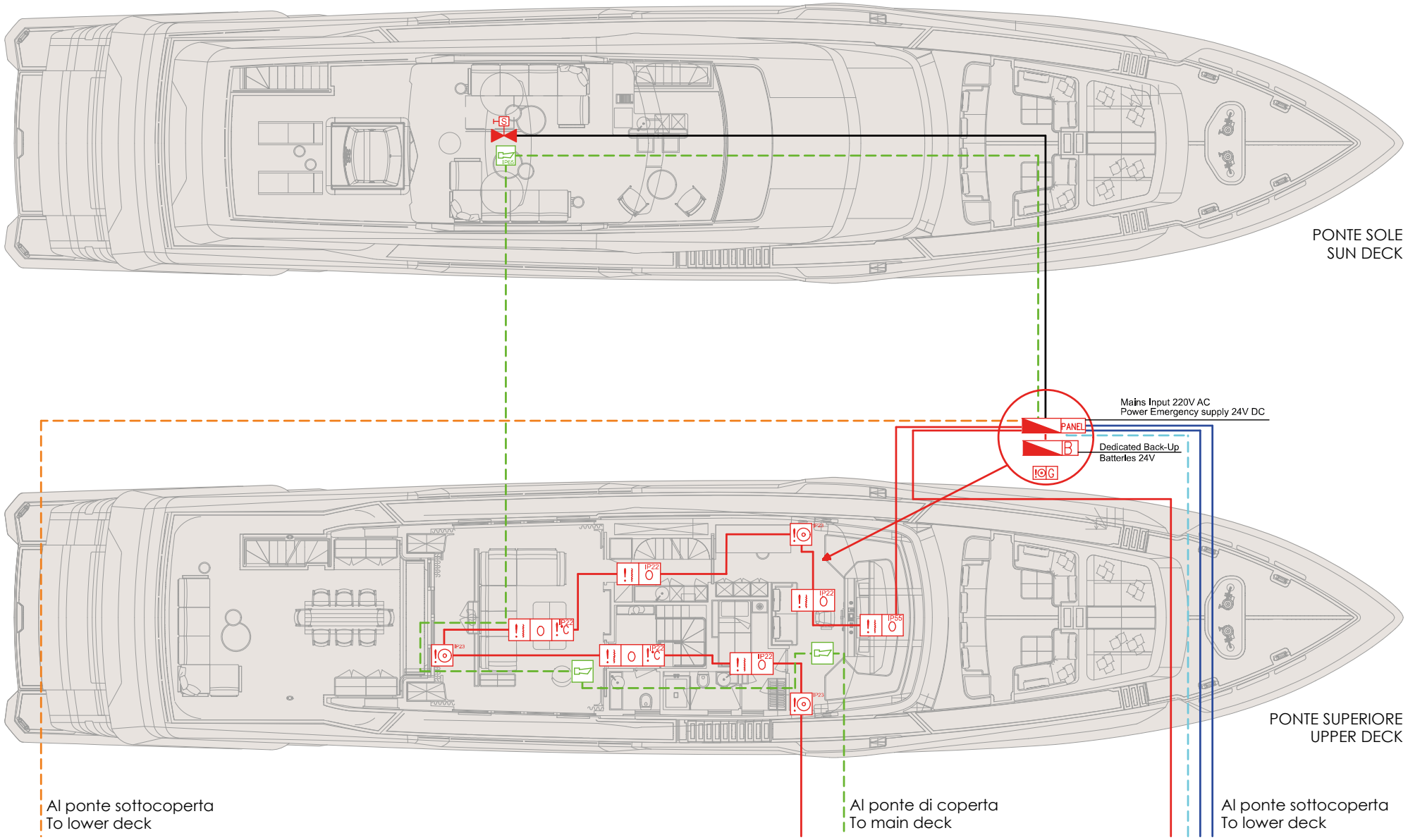
For this purpose, it is necessary to open the fuel delivery valves, previously closed by the fire-fighting handle for fuel cut-off, by turning them anticlockwise.

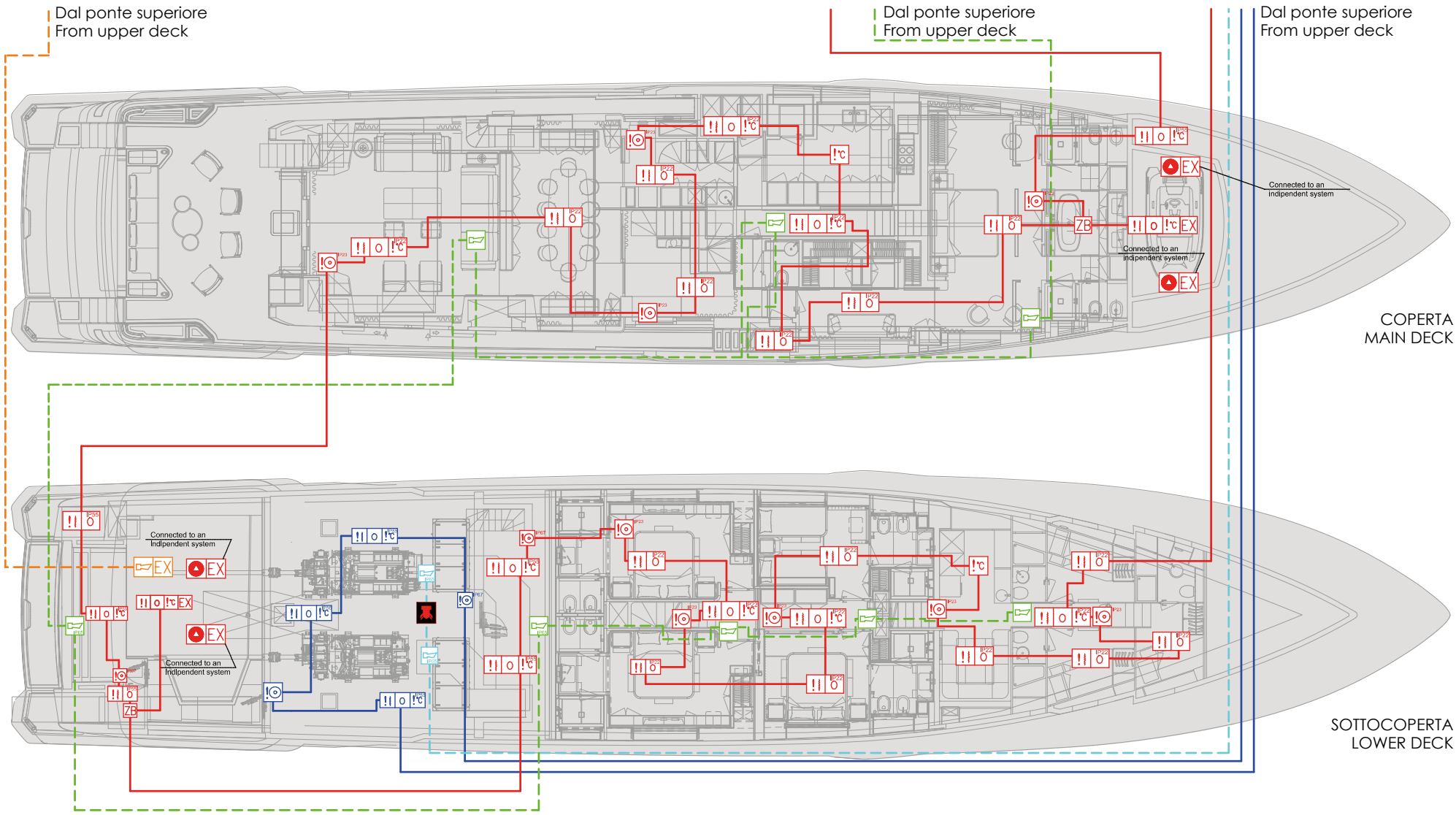
The fuel cut-off valves are not to be left in intermediate positions but they must be completely open, when the red handle is parallel to the longitudinal axis of the piping.

2.8 ALARM DEVICES

Your yacht is fitted with a smoke and heat detection system.
The control unit is located on the helm station.
There are smoke and heat detectors in the various rooms of the yacht.
In the various decks of the yacht there are buttons for the manual activation of the smoke alarm.

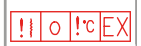
NOTE
For further information on use and maintenance, please refer to the manufacturer's manual.


PONTE SOLE
SUN DECK
Mains Input 220V AC
Power Emergency supply 24V DC
PANEL
B
Dedicated Back-Up
Batteries 24V
PONTE SUPERIORE
UPPER DECK
Al ponte sottocoperta
To lower deck
Al ponte di coperta
To main deck
Al ponte sottocoperta
To lower deck


Dal ponte superiore
From upper deck
Dal ponte superiore
From upper deck
Dal ponte superiore
From upper deck
Connected to an
indipendent system
Connected to an
indipendent system
COPERTA
MAIN DECK
Connected to an
Indipendent system
Connected to an
Indipendent system
SOTTOCOPERTA
LOWER DECK

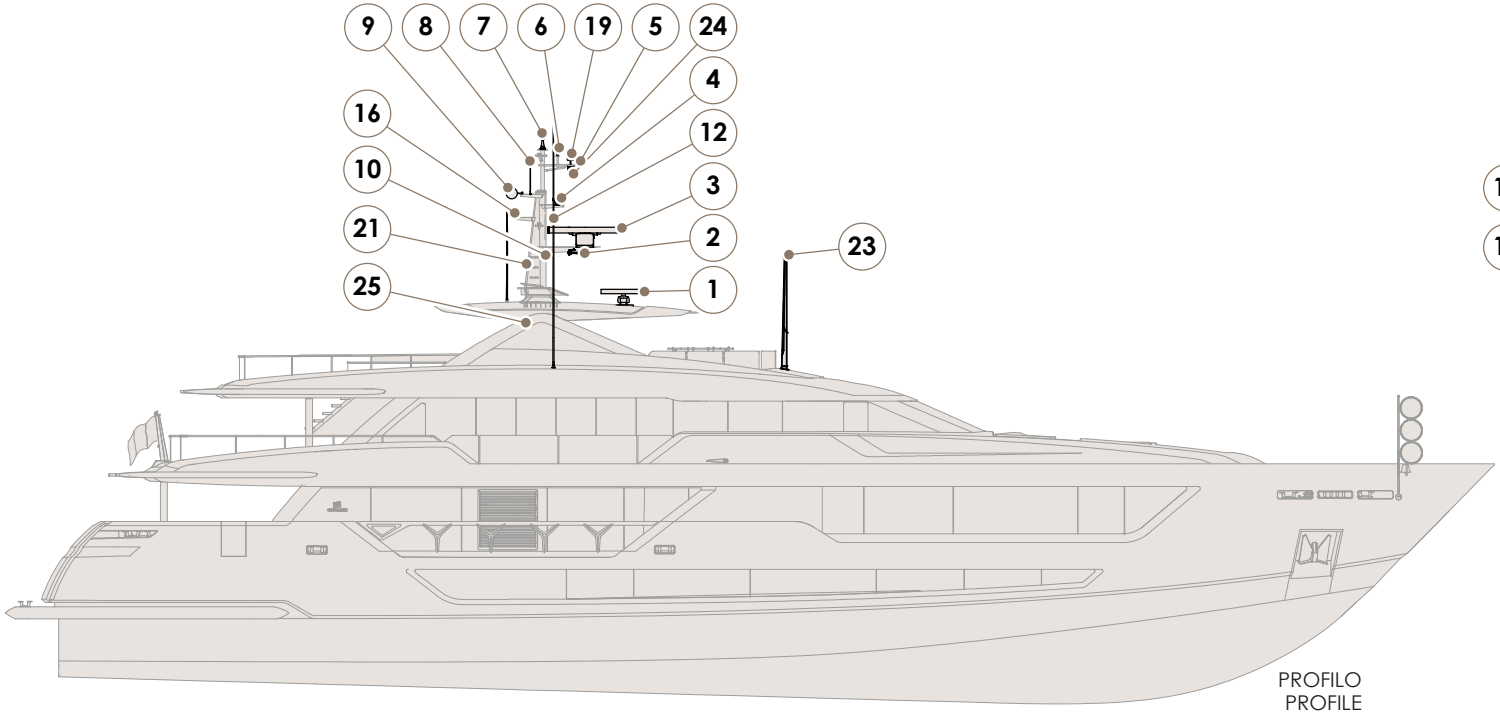
ICONA ICON	DESCRIZIONE DESCRIPTION
	Pannello operatore Operator panel
	Unità centrale Central unit
	Box batterie Battery cabinet
	Punto di chiamata IP23 Manual call point IP23
	Punto di chiamata IP67 Manual call point IP67
	Rilevatore fumo IP22 Smoke detector IP22

ICONA ICON	DESCRIZIONE DESCRIPTION
	Rilevatore fumo IP55 Smoke detector IP55
	Rilevatore di calore Heat detector
	Rilevatore fumo e calore IP55 Smoke & heat detector IP55
	Rilevatore fumo e calore IP22 Smoke & heat detector IP22
	Pulsante generale allarmi General alarm button
	Rilevatore vapori gasolio Gasoline vapor detector
	Elettrovalvola tromba Horn solenoid valve

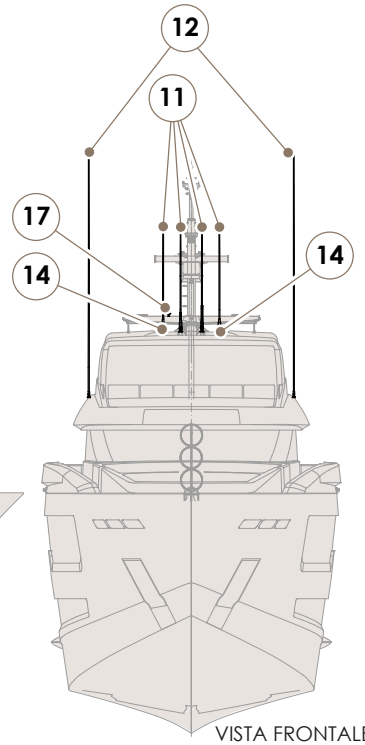
ICONA ICON	DESCRIZIONE DESCRIPTION
	Rilevatore fumo e calore Smoke & heat detector
	Barriera zener Zener barrier
	Allarme acustico Alarm sounder
	Allarme acustico IP65 Alarm sounder IP65
	Allarme acustico ExProof ExProof alarm sounder
	Rilevatore calore - 100 gradi Heat detector - 100 degrees
	Roto-allarme Roto-alarm

2.9 ANTENNAS, NAVIGATION LIGHTS AND DAYLIGHT SIGNALS

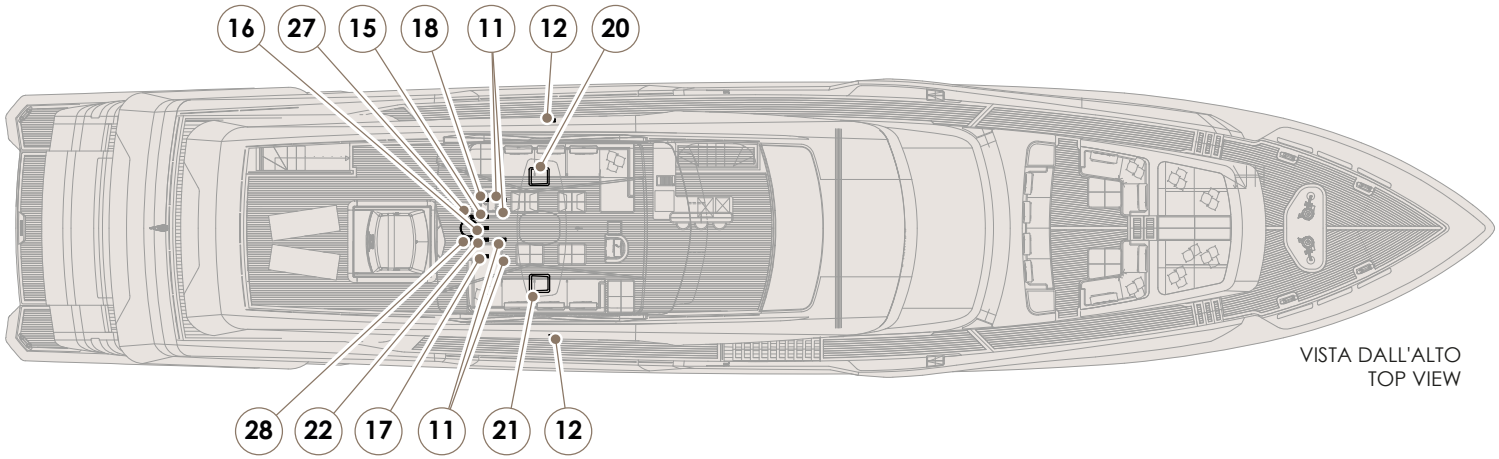
2.9.1 Antennas



PROFILO
PROFILE



VISTA FRONTALE
FRONT VIEW



VISTA DALL'ALTO
TOP VIEW

ART. ITEM	DESCRIZIONE DESCRIPTION
1	Antenna radar Radar antenna
2	Tromba Horn
3	Antenna radar Radar antenna
4	Faro orientabile Search light
5	Fanale fonda Anchor light
6	Sensore meteo Weather sensor
7	Parafulmine Lighting rod
8	Ricevitore navtex Navtex receiver
9	Riflettore radar Radar reflector
10	Altoparlante interfono Intercom speaker
11	Antenna VHF VHF antenna
12	Antenna SSB-HF SSB-HF Antenna
15	Antenna GPS GPS antenna

ART. ITEM	DESCRIZIONE DESCRIPTION
16	Antenna GPS attiva Active GPS antenna
17	Antenna go-connect Go-connect antenna
18	Antenna AIS (antenna GPS) AIS antenna (GPS antenna)
19	Sistema GMDSS GMDSS system
20	Antenna TV SAT KVH KVH TV SAT Antenna
21	Antenna KVH / Dome vuoto KVH Antenna / Empty dome
22	Antenna GPS GPS antenna
23	Fanale testa albero Masthead light
24	Telecamera termica Thermal camera
25	Solo allarme antincendio Smoke alarm only
26	Antenna GPS GPS antenna
27	Antenna LTE LTE antenna
28	Antenna WiFi WiFi antenna

CAUTION

During transmission, keep off more than 2 metres from the TV-SAT aerial.

CAUTION

The radome of the antenna must absolutely not be washed with pressure water; we recommend directly cleaning with a sponge or doeskin. For a correct maintenance avoid the penetration of water inside, the radome is not waterproof, in order to allow possible condensation to evaporate.

WARNING

Access the Hard Top only with safety belt by qualified / trained technical personnel for work at height.

2.9.2 Navigation lights

LIST OF LIGHTS					
DESCRIPTION	COLOUR	ANGLE	Q.TY	VISIBILITY	LIGHT TYPE
MAST HEAD LIGHT	WHITE	225°	1	5 MILES	LOPOLIGHT - 300 - 036
ANCHOR LIGHT	WHITE	360°	1	2 MILES	LOPOLIGHT - 200 - 012
NAVIGATION LIGHT STDB SIDE	GREEN	112°30	1	2 MILES	LOPOLIGHT - 300 - 001
NAVIGATION LIGHT PORT SIDE	RED	112°30	1	2 MILES	LOPOLIGHT - 300 - 002
STERN LIGHT	WHITE	135°	1	2 MILES	LOPOLIGHT - 300 - 006
NOT UNDER CONTROL LIGHT	RED	360°	4	2 MILES	ACQUA SIGNAL 55

CONDITION	LIGHTS AND SIGNALS	COLREG
GROUNDED DAY TIME	3 BLACK BALLS	30 d
GROUNDED NIGHT TIME	ANCHOR LIGHT AND 2 RED LIGHTS	30 d
NOT UNDER COMMAND DAY TIME	2 BLACK BALLS	27 a
NOT UNDER COMMAND NIGHT TIME	2 RED LIGHTS	27 a
AT ANCHOR DAY TIME	1 BLACK BALL	30 b
AT ANCHOR NIGHT TIME	ANCHOR LIGHT	30 b
SEAGOING	SIDE, MASTHEAD, STERN	30 a

The rules relevant to the navigation lights must be observed from sunset to dawn and during this period no other lights must be visible except the lights that cannot be exchanged for those specified in this manual. Although the lighting system is preset by the Manufacturers, the Owner/Captain has the responsibility for the observance of the local rules.

Please note that the local rules relevant to on board position of lights can slightly vary, we suggest therefore to gather information about the local rules of your area.

Night navigation requires more precaution.

All rules are applicable but apart from the right of course, it is advisable to slow down and to keep the proper distance from other boats.

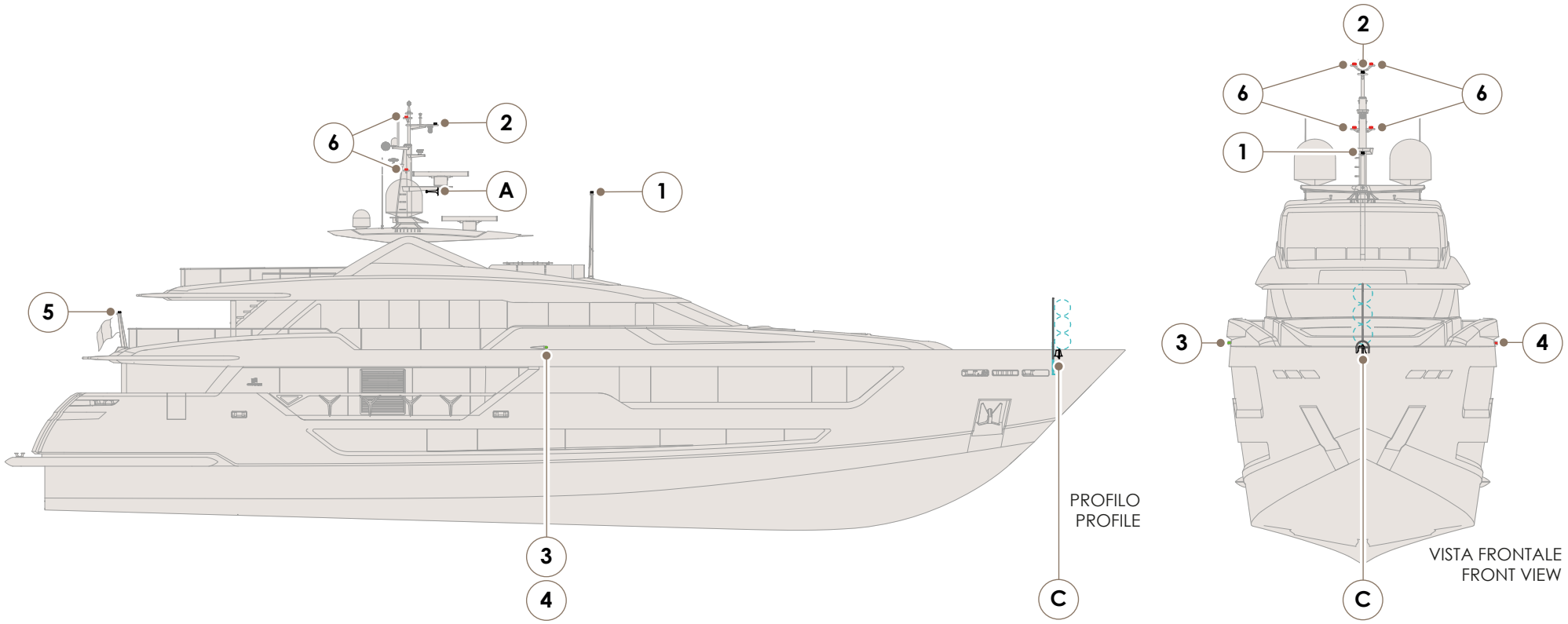
It is a good rule to remember that bright lights reduce visibility at night.

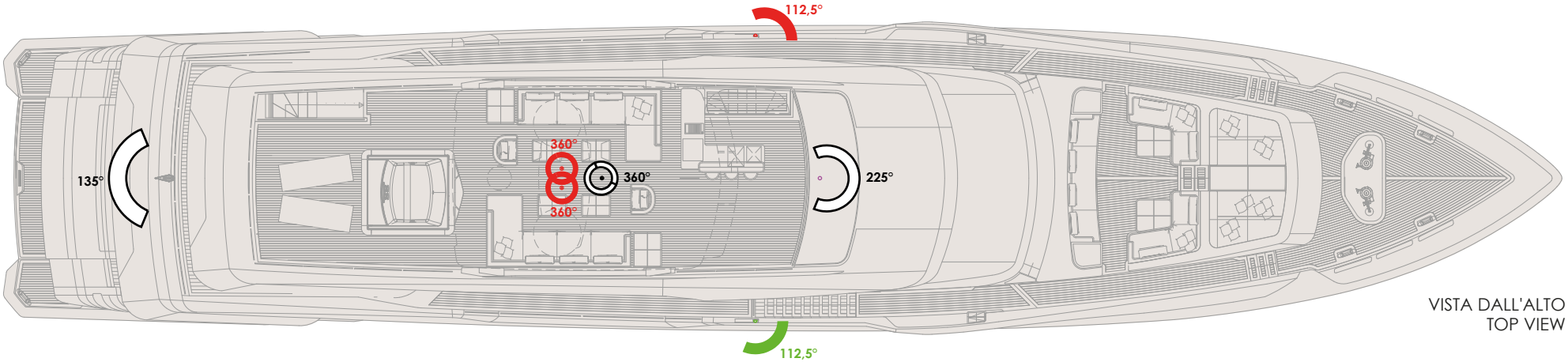
MAINTENANCE

At least once a week check the operation of the navigation lights.
At least once a week carry out accurate cleaning of glasses and headlights.
At least once every six months check the presence of corrosion in the connections of the navigation light cables.
At least once every six months, tighten the cable connections of the navigation lights.

The use of headlights during the various situations of use of the yacht during night navigation are illustrated below:

- **Navigation:** Masthead lights, side lights and stern lights on.
- **At anchor:** Anchor lights on.
- **Drifting:** Two red lights on (no steering mast installed).
- **Stranded:** Anchor light and two red lights on (no steering mast installed).





VISTA DALL'ALTO
TOP VIEW

ELENCO FANALI LIGHTS LIST					
ITEM	DESCRIZIONE - DESCRIPTION	COLORE - COLOR	ANGOLO - ANGLE	QTA’ - QTY	VISIBILITA’ - VISIBILITY
1	Testa d’albero - Masthead light	BIANCO - WHITE	225°	1	5 MIGLIA - MILES
2	Fonda - Anchor light	BIANCO - WHITE	360°	1	2 MIGLIA - MILES
3	Via Destra - Navigation Light STDB side	VERDE - GREEN	112,5°	1	2 MIGLIA - MILES
4	Via Sinistra - Navigation Light PORT side	ROSSO - RED	112,5°	1	2 MIGLIA - MILES
5	Coronamento - Stern light	BIANCO - WHITE	135°	1	2 MIGLIA - MILES
6	Non governo - Not under control light	ROSSO - RED	360°	4	2 MIGLIA - MILES

SEGNALI ACUSTICI SECONDO COLREG 1972 ANNESSO III SOUND SIGNALS ACCORDING COLREG 1972 ANNEX III		
ITEM	DESCRIZIONE - DESCRIPTION	QTA’ - QTY
A	Sirena - Whistle	1
B	Campana - Bell	1

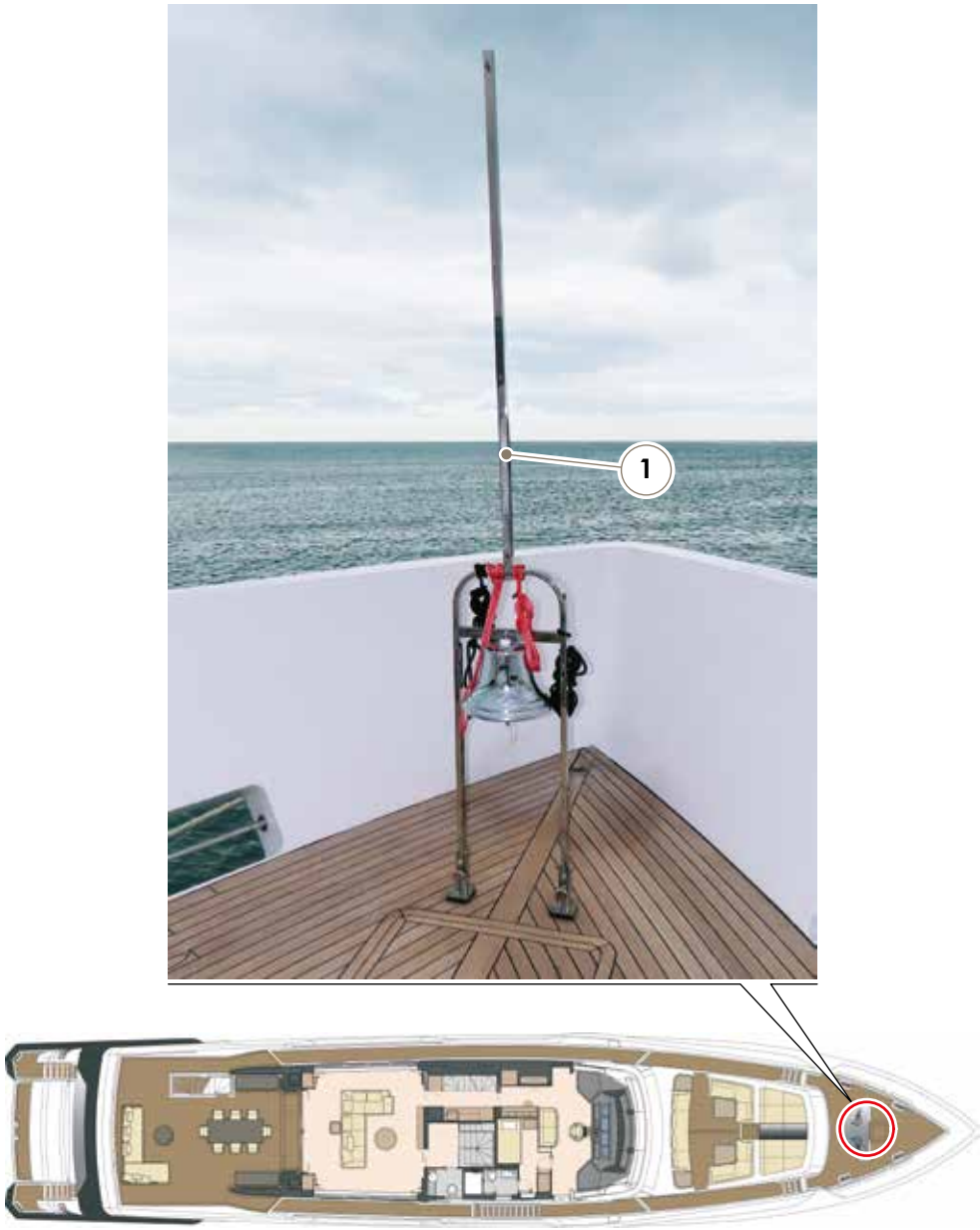
2.9.3 Daylight signals

In order to increase the safety of persons on board, the Manufacturer has provided the installation of a daylight mast signals (**1**), in accordance with the Directive 2013/53/EU.

NOTE
The combined use of daylight signals and navigation lights increases the yacht's visibility, reducing the risk of collisions.

CAUTION
The positioning of the navigation lights is optimised by adapting the regulatory requirements to the geometry of the boat, providing lights where they are most easily visible.
Non-steering lights (N.U.C. = Not Under command) and a bell are not included in the on-board equipment. The fitting of lights and sound signals is subject to the approval of the Flag Administration where the boat is registered.

WARNING
Navigation lights, shapes and sound signals.
Where navigation lights, shapes and sound signals are installed, they must be in conformity with COLREG 1972 (II International Regulations for Preventing Collisions at Sea) or CEVNI (European Code for Inland Waterways). Regulations depending on the case.

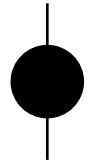


Daylight signals have the same function as navigation lights but are more visible during the day than navigation lights.

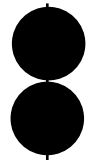
Depending on the situation, appropriate signalling templates shall be used.

Hereunder is a list of the most common ones to adopt after installing the relevant mast:

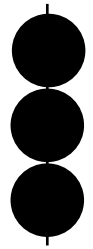
• Yacht at anchor:



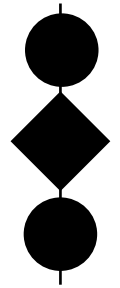
• Non-steering yacht:



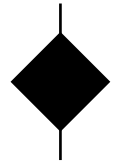
• Stranded yacht:



• Yacht with limited manoeuvrability:



• Yacht to trailer or towed:



2.10 MANDATORY SAFETY EQUIPMENT

In order to ensure the maintenance of the intrinsic safety conditions of the yacht, the Owner must keep the yacht in good operational conditions (as regards to the hull, and the propulsion, electrical and fire-fighting systems), and also to provide for the replacement of any system, rescue and safety equipment showing signs of wear or deficiencies capable of impairing their efficiency.

In addition to the equipment provided by CUSTOM LINE, the Owner is responsible for providing the yacht with any further system and safety/marine equipment required by the rules in force in the nation where the yacht is used, according to weather and sea conditions and to the distance from safe harbours along the intended course.

DANGER

Rescue equipment must be arranged so as that when it is launched there are no obstacles to free floating and must be equipped with proper fitting allowing for quick release from the yacht when at sea.
The Owner is responsible for equipping the yacht with some of the equipment listed.

WARNING

The above-mentioned safety systems must comply with existing local and international navigation regulations, and must be periodically inspected and maintained by specialized companies and qualified technical personnel, prior to the expiry date indicated on the systems.

CAUTION

Refer to the local Port Authorities for instructions and changes of the Safety Rules in force in the country where you are.

2.11 SCHEDULE

Minimum rescue facilities and safety equipment to be kept on board of yachts and pleasure yachts with no limit of distance from the shore and with expiry date.

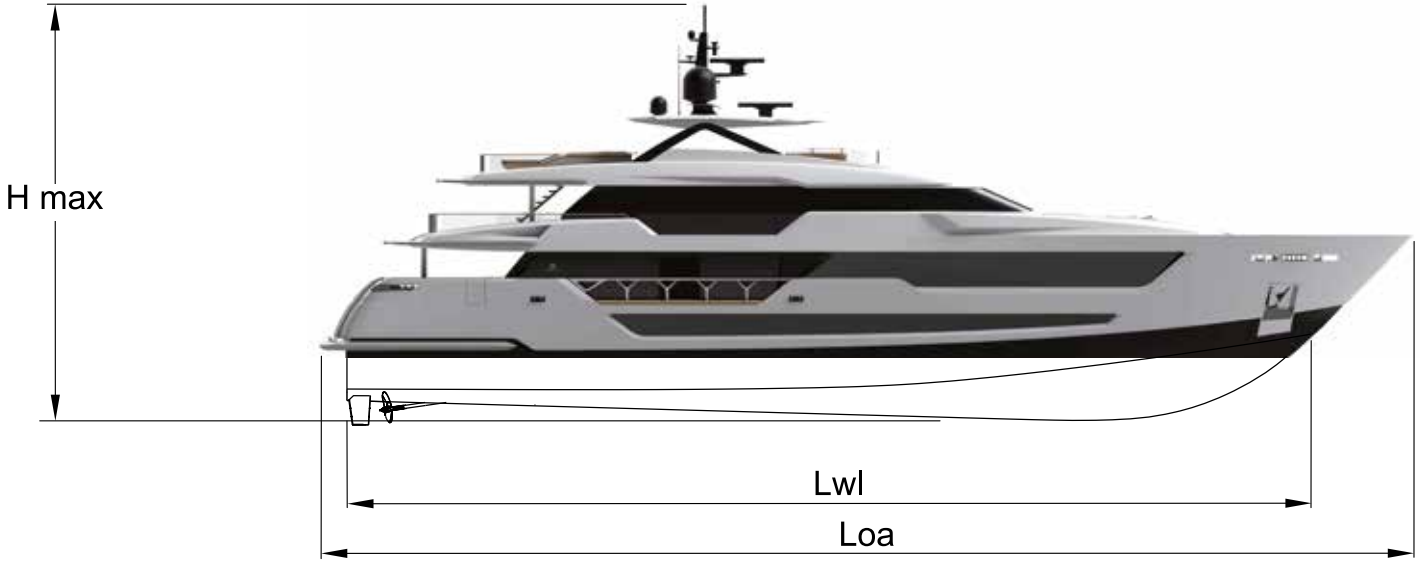
	2027	2028	2029	2030	2031	2032	2033	2034	2035
Self-inflatable life raft (for all persons on board)									
Individual life buoy (for each person on board)									
Life jacket with rope (floating type)									
Light buoy									
Smoke buoy									
Red light hand fires									
Red signal rockets with parachute									
Compass and deviation schedules									
Nautical charts									
First aid kit									
RTF inspection									
Property tax									
Insurance									
License (pilot)									
Portable fire extinguishers									
Fixed fire extinguisher in the engine room									
E.p.i.r.b.									

CUSTOM LINE 140’

3

Description of the yacht

3.1 MAIN DIMENSIONS AND CHARACTERISTIC DATA



MAIN DIMENSIONS		
Loa = overall length	42,61 m	139 ft 10 in
Lh = Hull length	42,61 m	139 ft 10 in
Lwl = waterline length (boat fully laden)	36,3 m	119 ft 1 in
Maximum beam	8,54 m	28 ft 0 in
Depth under propellers (boat fully laden)	2,35 m	7 ft 9 in
Appendages	0 m	0 ft 0 in
Displacement laden	265 ton	584225 lbs
Displacement unladen	225 ton	496040 lbs
H max = Overall height from keel to roll bar	11,50 m	37 ft 9 in
Gross tonnage	398 GT	

FEATURES		
Hull type		Warped hull with spray rails and aft deadrise 8.5°
Construction material		Carbon
Transmission		Shaft line
Capacity of fuel tanks	About	28400 lt - 7502 gal
Capacity of fresh water tanks	About	4000 lt - 1057 gal
Capacity of black water collecting tanks	About	1500 lt - 396 US gal
Capacity of grey water collecting tanks	About	1500 lt - 396 US gal
Oil change system tank capacity	About	260 lt - 69 gal
Total liquid weight (full tanks)	About	30,5 ton - 67.241 lb

STRUCTURAL DATA	
Cabins	5
Crew cabins	4
Cabins bathrooms	5
Crew cabins bathrooms	4
Available bathrooms	2

MAIN COMPONENTS	
Propulsion engines	2 x MTU 16V 2000 M96L 1939 kW / 2638 mhp a 2450 giri/min 3450 kg / 7606 lbs
Gearbox	2 x ZF 5250 A 8° (RR° 3.629:1)
Propeller shaft	Ø120 mm - L 5900 mm
Stuffing box and shaft seal	Ø120 mm
Electric generators	2 x ZENORO 80 kW 50Hz
Fresh water pump	2 x ECOINOX 622, 400V 50Hz

MAIN COMPONENTS	
Bilge/fire-fighting motor pump	M-BMA 50/160 3,4 kW 330
Bilge / fire pump	2 x ACB 531A 4kW 50Hz
Hot water recirculation pump	Z25
Black waters tank drain pump	MV 44 380 V 50 Hz
Grey waters tank drain pump	MV 44 380 V 50 Hz
Hot water heater	2 x 200 lt 1,5 kW 400 V 50 Hz
Services battery charger	24 V - 100 A
Engine battery charger	24 V - 50 A
Generator battery charger	24 V - 20 A
Emergency battery charger	24 V - 100 A
Radio battery charger	24 V - 20 A
Engine batteries	2 x 12 V - 263 Ah
Services batteries	12 x 2 V - 696 Ah
Generator batteries	2 x 12 V - 120 Ah
Anchor	2 x 240 kg
Anchor chain	2 x 137 m (16 mm)
Anchor winch	2 x ASL67-16X
Warping	2 x TLG15-170X 2,2 kW 400 VAC
Engine room fan	CL140
Engine room aspirator	LLL/AP 406/3 230/400V 50Hz
Fuel separator prefilter (engines) MM/EE	2 x MTU 12 V - 16 V EPA
Generator fuel filters	2 x 500 MA MP
Fuel pump transfer	1 x CP 40 380V 50Hz
Auxiliary fuel pump transfer	1 x CP 40 24V
Watermaker	250+250 l/h Duplex

CAUTION

CUSTOM LINE yachts are designed to obtain a correct transversal trim with full-optional equipment, as well as propellers and shafts.
If the yacht is not provided with full optional and with spare propellers and shafts, some weights are inserted to correct the transversal trim.
The above-mentioned weights can be removed or displaced as soon as the yacht is provided with a new equipment.

NOTE

The technical specifications and the performances indicated are merely indicative, do not constitute an offer with the value of a contract in any way, and are referred to standard models of the yachts built by the Shipyard in the European version.
The only technical indications or descriptions with contract value for the purchaser are those relevant to the specific yacht purchased and contained in the sale documents.

3.2 GENERAL YACHT LAYOUT AND SECTORS

This chapter contains a general description of the yacht and is supported by a set of illustrations thanks to which it is possible to easily locate the main areas and the different devices.
Advice and information on the correct use of the various instruments are also given.

The structure of the yacht has been divided as follows:

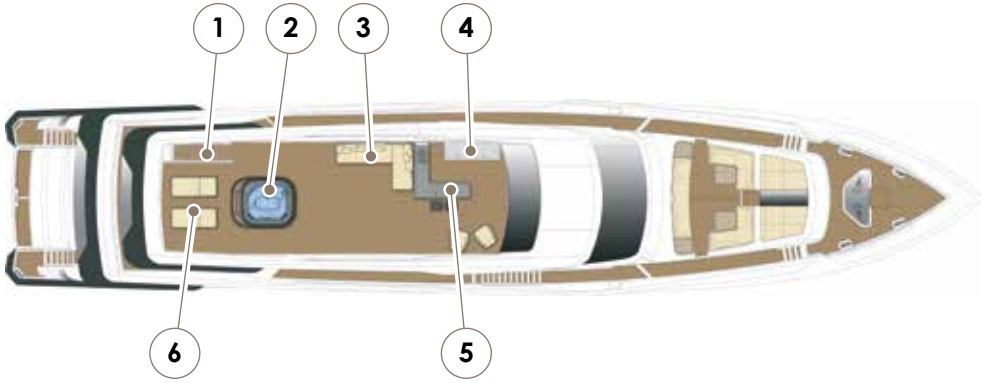
- Sun deck;
- Upper deck;
- Main deck;
- Lower deck;
- Engine room.

The yacht is provided with both electronic and mechanical devices and instruments; some of these are provided with their own user's manuals.

The information contained therein are an integral part of this Owner's Manual.

3.3 SUN DECK

KEY	
1	Upper deck access stairs
2	Whirlpool
3	Sofa
4	Service stairs leading to the upper deck
5	Bar unit
6	Sun lounge area



CAUTION
Never use denaturised alcohol or acetone to clean Plexiglas parts; they could crack inside.

CAUTION
Is not recommended to move during navigation, because a lateral skid of the yacht could have a negative effect on a moving passenger, causing an accidental fall or the impact against a piece of furniture.

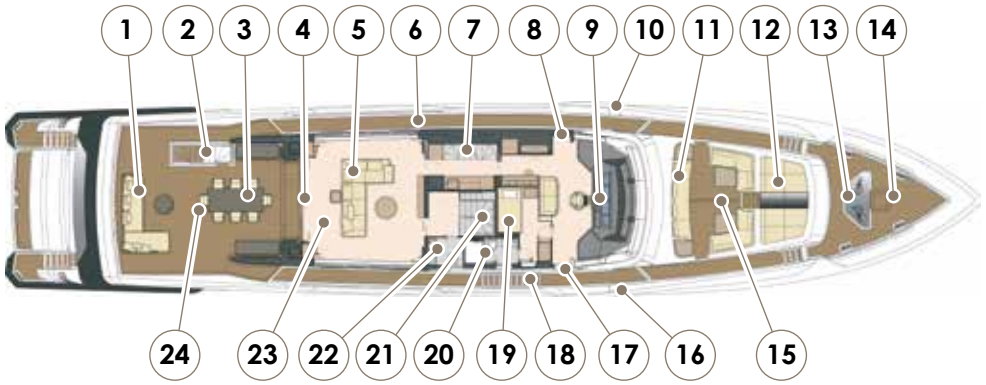
CAUTION
Keep all on board steps clean and dry.

CAUTION
Do not use the whirpool (optional) during navigation.
Empty the whirpool (optional) before starting navigation.

CAUTION
Access the Hard Top only with safety belt by qualified / trained technical personnel for work at height.

3.4 UPPER DECK

KEY	
1	Aft cockpit sofa
2	Stairs leading to the sun deck / main deck
3	Stern cockpit table
4	Interior/exterior access sliding door
5	Lounge sofa
6	Port-side lateral walk-around
7	Service stairs leading to the sun deck / main deck
8	Entrance / exit door from the helm station (port side)
9	Helm station
10	Port-side helm station
11	Bow cockpit sofa
12	Bow sundeck
13	Forward mooring utilities area
14	Anchor chain stowage compartment and windlass controls
15	Bow cockpit
16	Starboard-side helm station
17	Entrance / exit door from the helm station (starboard side)
18	Bow area access stairs
19	Captain's cabin
20	Captain's cabin bathroom
21	Main deck access stairs
22	Service bathroom
23	Upper deck lounge
24	Upper deck stern cockpit



CAUTION

For the adjustment of the saloon door, please contact the CUSTOM LINE after sales & service department.

CAUTION

Never start navigation with saloon door unlocked.
Its structure, if free, might develop an inertial force, thus causing danger of cuts or crushing.

CAUTION

Keep the access to the helm station reserved to the Captain only, in order to prevent accidental alterations of the instruments carried out by incompetent persons.

CAUTION

Before undertaking any navigation, check that the doors are closed and locked. You will avoid unpleasant banging and accidental dangers.

CAUTION

Never use denaturised alcohol to clean Plexiglas parts; they could crack inside.

DANGER

The personnel operating the yacht during the various activities on board must not be under the influence of alcohol, narcotics or drugs.

CAUTION

For the correct use of the various devices installed in the main helm station, see the relevant instruction manuals.

CAUTION

It is not recommended to move during navigation, because a lateral skid of the yacht could have a negative effect on a moving passenger, causing an accidental fall or the impact against a piece of furniture.

CAUTION

The lounge, like much of the yacht , is equipped with air conditioning. It is therefore advisable to open the window as little as possible when the system is in operation.

CAUTION

The excessive use of conditioned air may cause infirmities due to the great difference of temperature between the yacht inside and the outside.
It is recommended to condition rooms with a temperature difference of maximum 5 °C between inside and outside.

CAUTION

If you are to open or to close the weather-proof door, check first that the walk-arounds are clear from crew or passengers. Their opening or closing restricts the movement space on the walk-around.

CAUTION

The removable awnings and related support poles must always be dismantled and stored in the appropriate seats before starting navigation.
When not in use, the poles must be stored in the appropriate seats.
Awnings should only be installed when the yacht is stationary and with favourable weather and sea conditions.
Do not leave the awnings open in the event of heavy rain.
Do not leave the awnings installed on an unattended yacht.
Do not let water pool on the fabric of the awnings.
When not using the awnings, keep the pole engagement holes closed with the appropriate covers.

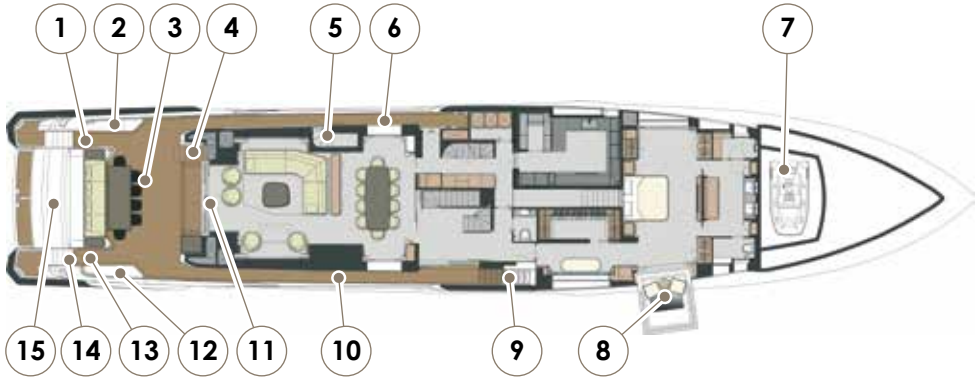
CAUTION

The use of side locking systems, such as Cristal or similar ones, is not allowed during navigation.

3.5 MAIN DECK

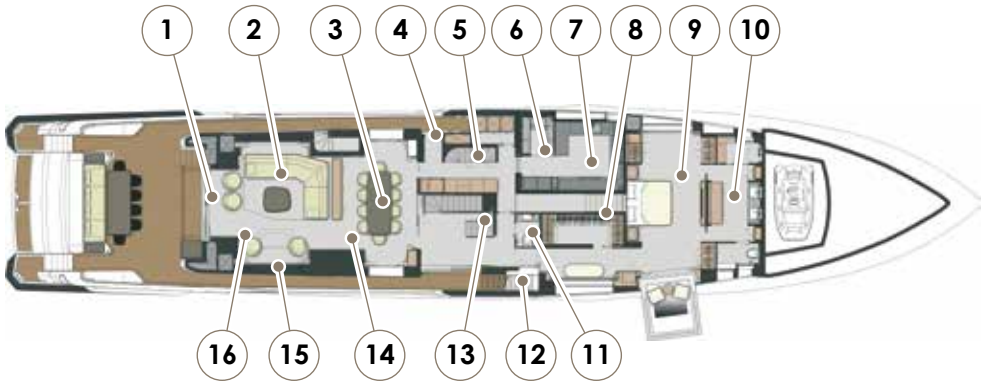
3.5.1 External area

KEY	
1	Stern beach area access stairs
2	Port-side mooring area
3	Stern cockpit
4	Upper deck access stairs
5	Control room / engine room access stairs
6	Port-side lateral walk-around
7	Bow storage
8	Owner’s cabin balcony
9	Upper deck access stairs
10	Starboard lateral walk-around
11	Interior access sliding door
12	Starboard-side mooring area
13	Stern beach area access stairs
14	Gangway
15	Beach area / stern platform



3.5.2 Internal area

KEY	
1	Exterior access sliding door
2	Lounge sofas
3	Lounge dining table
4	Port-side lateral walk-around access door
5	Upper deck access service ladder
6	Pantry
7	Galley
8	Crew area access ladder
9	Owner’s cabin
10	Owner’s cabin bathroom
11	Day Head
12	Upper deck access stairs
13	Lower deck access stairs
14	Dining area
15	Lateral sliding door
16	Lounge



CAUTION

Always use the gangway to board the yacht; any other access system is potentially dangerous.

DANGER

It is forbidden to stand on the stern beach during navigation as it is not equipped with safety systems that prevent people from falling into the sea.

WARNING

Never navigate with the gates, swim ladder, gangway, hatch, garage, bathroom area and panoramic terrace not properly stored/closed.

DANGER

Do not use the bow compartment to stow fuel.

DANGER

The garage hatch must always be closed during navigation, it can stay open only with stationary yacht and with favourable sea weather conditions. Loads stowed inside the garage, in particular a possible jet-ski, must be fastened with the utmost care. During navigation nobody should stay inside the garage.

DANGER

As the opening/closing of the garage hatch is performed by means of power-steered mechanisms, always check that no obstacles or persons are standing nearby before its activation; this operation must be performed exclusively by skilled crew.

CAUTION

Periodically check that groundings are in order. Keep connections dry and protected with anti-corrosion grease.

CAUTION

Keep the access ladder to the main deck clean and dry. Get good hold of the steps and handrail when you go up or down a stair to avoid falling down.

WARNING
When walking on the lateral walk-arounds, be careful so as to prevent any accidental fall at sea.

CAUTION
Do not use the warping winches as permanent mooring points.

DANGER
Never use foldaway cleats for the yacht mooring or towing. They have the sole function of mooring the tender or jet-ski and are not suitable for towing them.

WARNING
When leaning on the outside handrail, be careful so as to prevent any accidental fall at sea.

CAUTION
Do not obstruct the ventilation grids of the icemaker container, because a wrong ventilation, in addition to generate a performance decrease and a wrong operation, can also cause serious damages to the device.

WARNING
Periodically check the oil level inside the ice maker tank.

DANGER
Pay particular attention to rotary pieces, keeping your feet, hands, clothing and hairs at due distance.

CAUTION
For the adjustment of the saloon door, of the side glass walls and of the balconies, please contact the CUSTOM LINE after sales & service department.

CAUTION
Never start navigation with saloon door unlocked. Its structure, if free, might develop an inertial force, thus causing danger of cuts or crushing.

DANGER
Stop using the handlings (balconies, garages, side doors, cranes, glass walls) if the sea-weather conditions (wind, currents, weather factors) could jeopardize the yacht's stability.

CAUTION

Never navigate with the side windows and the terrace open.
Constantly check the correct operating sequence.

DANGER

Never operate the side glass walls and the balcony when someone is passing nearby.

DANGER

- Only the crew or trained personnel can handle the balcony.
- During all operations, the crew must be secured to the yacht with slings.
- While opening or closing, remain in a safe area.
- Open/close the balcony completely (wait for the acoustic signal to stop).
- During navigation, keep the balcony completely closed and with engaged safety latches.
- Do not open if there is not enough space on the side of the yacht.
- Install the stanchions as soon as the balcony is fully open.
- Do not exceed the maximum load recommended by the Manufacturer.
- Do not use the balcony as a springboard.
- Do not leave things or animals unattended on the balcony.

CAUTION

The saloon door which gives access to the salon is provided with a double automatic sensor for opening and closing (internally and externally); for a correct operation, they must not be obstructed.
The operation of the glass wall is enabled by a key in the stern cockpit near the opening of the glass wall.

CAUTION

For the safety on the people on board, the Captain should have an identifiable copy of the keys on board for any occasion.
Always keep a copy of the keys on your yacht, for deteriorated or altered locks, always contact CUSTOM LINE after sales & service department.

CAUTION

The living room is equipped with an air conditioning system, as most of the yacht's rooms; therefore, we recommend opening the glass-wall as little as possible when the system is operating.

CAUTION

The extremely precious finishing of woods used is the result of an accurate work, it is water resistant but at the same time delicate and needing accurate maintenance. Such surfaces must therefore be dried after use, after being exposed to rain and or washed, and a regular maintenance must be carried out.

CAUTION
The excessive use of conditioned air may cause infirmities due to the great difference of temperature between the yacht inside and the outside.
It is recommended to condition rooms with a temperature difference of maximum 5 °C between inside and outside.

CAUTION
Always check the absorption of the household appliances and deactivate them in case they are not used.

CAUTION
Do not leave pans unattended when they are on the burner.

CAUTION
It is recommended not to fill pots more than 50% with water and not to use pressure cookers.

CAUTION
When using the galley, increase the ventilation of the inner rooms as much as possible.
Never use the cooking top to heat the room.

CAUTION
Children are allowed to use the galley only when they are able to use its items correctly and to understand the dangers specified in the special instruction manuals. The help of an adult is required.

CAUTION
In order to eliminate smells, steams or fumes, it is necessary to turn on the suction hood at cooking start and to keep it on after cooking end for 10-15 minutes.

CAUTION
Do not put liquid food into the oven.

CAUTION
Do not place metal containers or containers with metal inserts inside the microwave oven.

CAUTION
Please remember that the plate, even after use, can still be very hot for a long time, and that it may cause damage to property or scalds.

CAUTION

In case of navigation with rough sea, we recommend not to use the galley.

CAUTION

For the procedures and the correct use of the various household devices of the galley, refer to relevant manuals.

CAUTION

If you are to open or to close the weather-proof door, check first that the walk-arounds are clear from crew or passengers. Their opening or closing restricts the movement space on the walk-around.

CAUTION

During navigation, keep the side doors closed to avoid possible damage to the on-board instruments.

CAUTION

Turn on the spot lights of the passage ways so as to ensure a proper lighting.
Check the operation of the spot lights and, if necessary, replace their bulbs, observing following precautions:

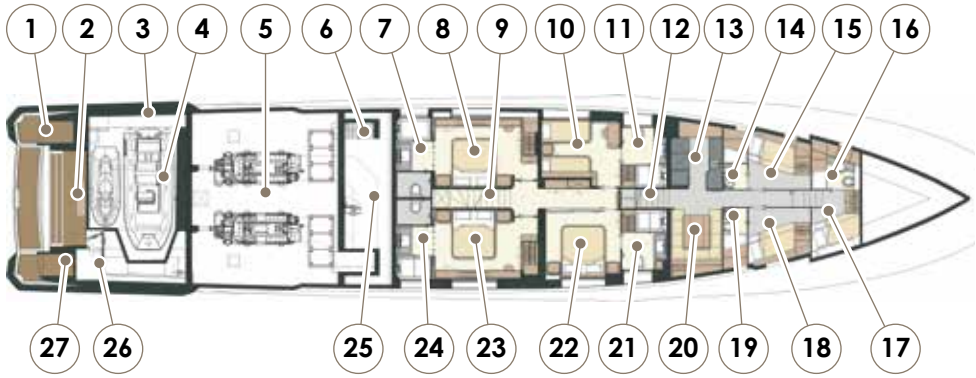
- Disconnect the electric power supply of uses, from the main electrical panel;
- Wait until the ceiling light is cold;
- Unscrew and remove the crown and the light protection;
- Take out the lamp body and remove the bulb;
- Reinstall a bulb with connection and power-voltage-amperage features equal to those of the removed one;
- Replace the bulb-holder in the seat;
- Reposition and screw in the crown/light protection;
- If you have to replace an outer watertight light fastened with screw, apply.

CAUTION

CUSTOM LINE declines all responsibility for any accident to persons or damage to property caused by any special equipment stored in the garages by the Owner or by the crew.

3.6 LOWER DECK

KEY	
1	Stern beach area (swim ladder installation area)
2	Beach area
3	Garage hatch (closed)
4	Garage
5	Engine room
6	Main deck access ladder from engine room
7	Port VIP bathroom
8	Port VIP cabin
9	Main deck access stairs
10	Port guest cabin
11	Port guest bathroom
12	Stairs to main deck from crew quarters
13	Crew area galley
14	Port crew cabin bathroom
15	Port crew cabin
16	Bow crew cabin bathroom
17	Bow crew cabin
18	Starboard crew cabin
19	Starboard crew cabin bathroom
20	Crew dining room
21	Starboard guest bathroom
22	Starboard guest cabin
23	Starboard VIP cabin
24	Starboard VIP bathroom
25	Control room
26	Stern technical compartment
27	Gangway



CAUTION
Before undertaking any navigation, check the closure of the cabs access doors. You will avoid unpleasant banging and accidental dangers.

CAUTION
Do not store in the bilge material free to move due of the lists of navigation.

CAUTION
Close the portholes while underway or when the yacht is left unattended for a long period.

CAUTION
Never use denaturised alcohol or acetone to clean Plexiglas parts; they could crack inside.

CAUTION
The mosquito net (optional) hinders the tightness of the portholes, take it off before closing the portholes.

MAINTENANCE
At least once a month check the correct operation of the closing system. At least once every three months check the watertight status. When necessary, clean the seals or replace them, if required.

DANGER
In the engine room, thermal engines create highly radiated areas which keep temperature high for a long time. Protect yourself and wait until they are cool before entering the engine room.

DANGER
You are not allowed to enter the engine room during navigation.

CAUTION
Only authorized personnel should have access to the engine room and also be informed about the components operation and about the features of the firefighting system.

DANGER
In case a fuel can is stowed in the garage, the can must not exceed a capacity of 25/30 litres.

CAUTION

In case a jet-ski is used, each passenger must wear a life jacket; the driver must also have a regular license and keep to the rules of the country where the jet-ski is driven.

DANGER

The personnel operating the yacht during the various activities on board must not be under the influence of alcohol, narcotics or drugs.

CAUTION

For the correct use of the various equipment in the control room and in the engine room see the relative user manuals.

The cabins of your yacht are equipped with a crew call system.

3.7 ENGINE ROOM

You can reach the engine room by descending into the systems compartment through the access located on the port side walk-around.

The engine room can be accessed from the systems room via a watertight door.

Before entering, switch on the engine room lighting.

DANGER
You are not allowed to enter the engine room during navigation.

DANGER
In the engine room, thermal engines create highly radiated areas which keep temperature high for a long time. Protect yourself and wait until they are cool before entering the engine room.

CAUTION
Do not store free-to-move items in the engine room, as they might skid during navigation.

CAUTION
Only authorized personnel should have access to the engine room and also be informed about the components operation and about the features of the fire-fighting system.

DANGER
For safety reasons the watertight hatch, giving access to the engine room, must be kept closed by any chance and situation. It must stay open only during the passage.

CUSTOM LINE 140’

4

Helm stations

4.1 YACHT HELM STATIONS

All yacht main controls and monitoring devices are located in the main helm station. Besides on the yacht there are other helm stations which facilitate the most difficult manoeuvres, and the emergency ones.

- Main helm station;
- Port / Starboard helm station (external, upper deck);
- Emergency wheelhouse (control room).

CAUTION

Herewith only general information for first start-up is given: in order to practice and for the specific use of the individual systems, see the CUSTOM LINE suppliers manuals and ask the CUSTOM LINE after sales & service department.

WARNING

It is a good rule to keep the instruments clean by washing them with wet and clean rugs, avoid using chemical or abrasive products. After navigation, it is advisable to cover instrumentation and equipment.

CAUTION

All electric appliances for navigation, whose parameters can be configured and set by software through the control panel, have been configured and tested upon delivery. These operations must be performed exclusively by authorized service personnel. Any modification of the preset configurations can alter the operation and reliability of the concerned system. Appliances must be used by the personnel in charge of driving the yacht and of using the systems.

4.1.1 Main helm station dashboard

The following main sections have been identified to simplify the description of the control devices:

A. Left control panel section
B. Central control panel section
C. Right control panel section
D. Backup panel

SECTION A:

1. **Ultra-stretch 16’ port monitor**
2. **keypad**
   Controls the operation of the port 16’ monitor.
3. **Trackball**
   Allows the operation of the starboard monitor to be checked.

SECTION B:

1. **24" left touch-screen monitor**
   Monitoring system touch-screen manager.

2. **Magnetic compass**

3. **Gyrocompass**

4. **Electronic steering control display**
   Used to monitor and set the operation of the electronic steering.

5. **24" right touch-screen monitor**
   Monitoring system touch-screen manager.

6. **Starboard engine electronic power supply key**

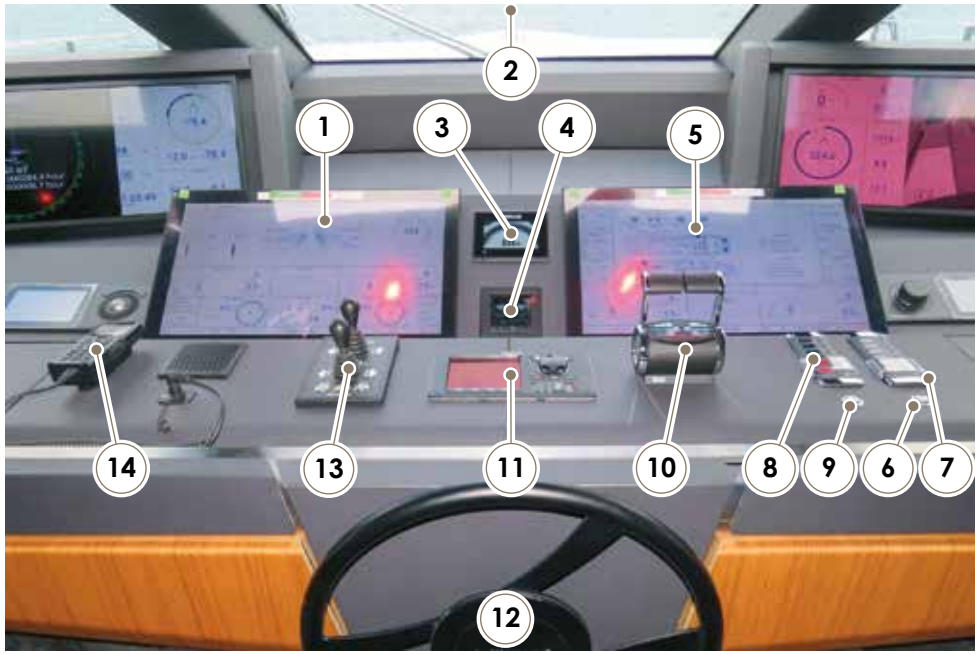
7. **Starboard engine on/off buttons**
   Used to start and stop the right engine even in the event of an emergency.

8. **Port engine on/off buttons**
   Used to start and stop the left engine even in the event of an emergency.

9. **Port engine electronic power supply key**

10. **Throttle**
    Controls the propulsion engine revolutions.

11. **Autopilot controls**
    It controls the operation of the autopilot, which allows to maintain a certain preset route, without operating manually on the wheel-house.



WARNING
At high speed, the use of the autopilot is dangerous and not recommended.
Anyway, be always very careful during navigation also when the autopilot is in use.

12. Steering wheel
It allows you to steer the ship.

WARNING
The steering wheels of the helm stations are not interlocked. Before starting to manoeuvre, make sure that the unused station is free from people who may interfere with the controls.

13. Thrusters control joystick
It controls the operation of the thrusters.
Reports the START and STOP buttons and two joysticks for control of bow thrusters and stern.

14. VHF-DSC radiotelephone
It is a radiotelephone with digital selective calling (DSC) Distress keys and call are protected by the use accidental. Single calls or group can be adequately performed from the keyboard using both the internal list or typing the number directly.

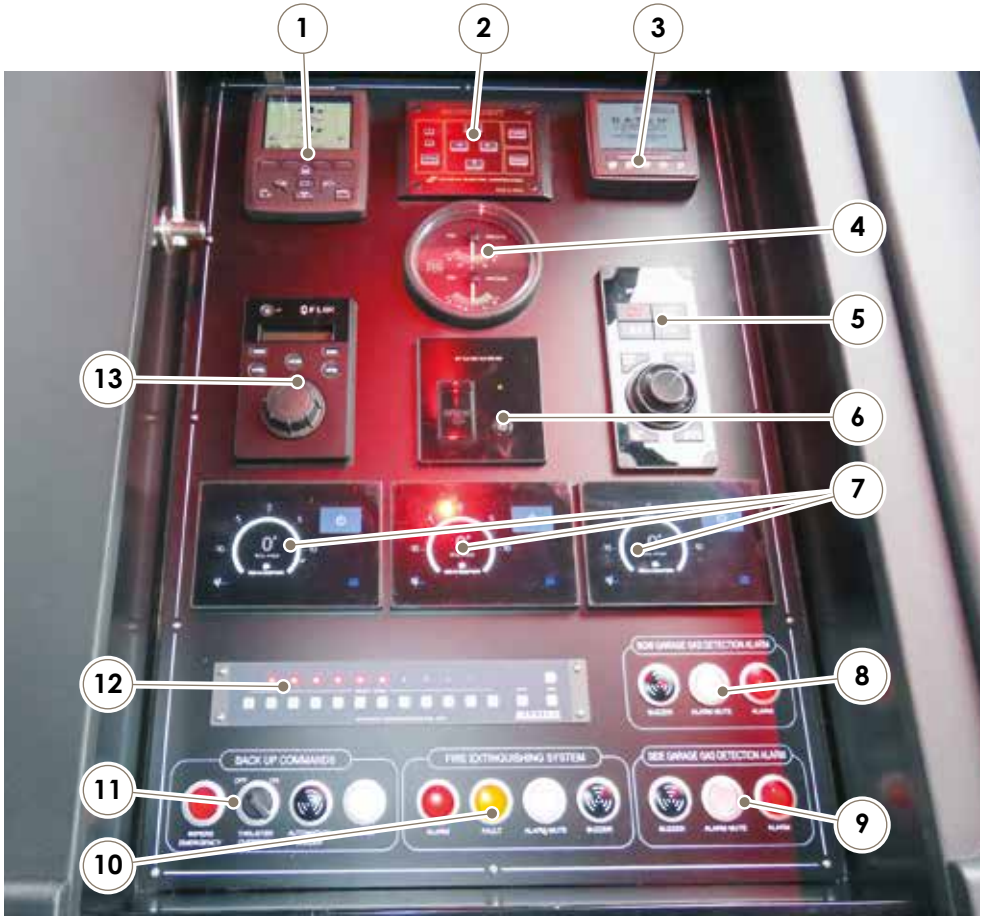
SECTION C:

1. **Ultra-stretch 16” starboard monitor**
2. **Keypad**
   Controls the operation of the starboard 16” monitor.
3. **Trackball**
   Allows the operation of the port monitor to be checked.

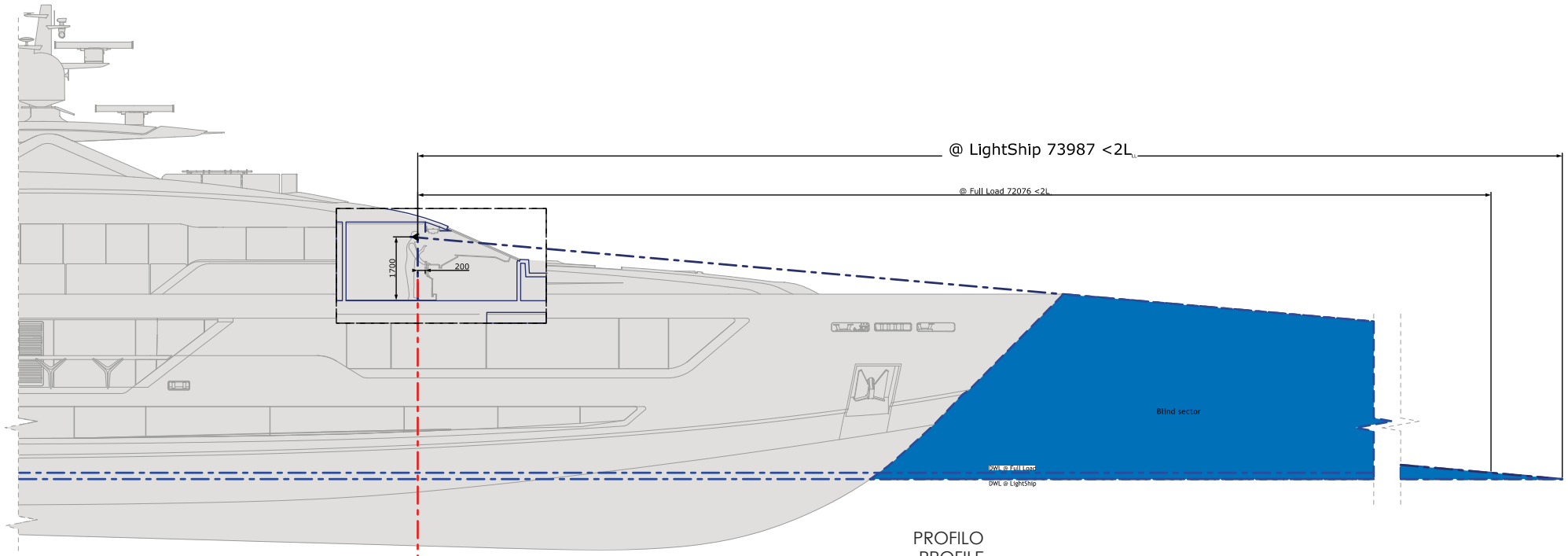
SECTION D:

The backup panel is located inside a compartment in the left-hand side section of the bridge and has the following utilities:

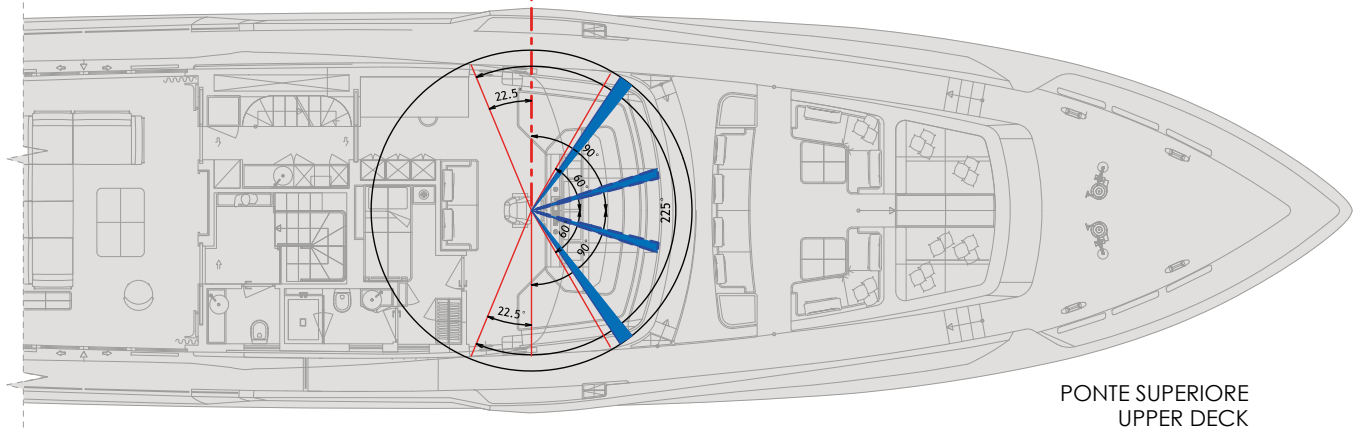
1. **Interceptors control display**
2. **Searchlight control panel**
3. **Stabilizing fins control display**
4. **Rudder angle indicator**
   Analogue indicator used to view the rudder angle.
5. **Monitor remote control**
   It allows to control the system in the event of a touch-screen key-pad malfunction.
6. **Black box SD reader**
7. **Gyroscopic stabilizer control display**
8. **Bow garage gas detection alarm**
9. **Port garage gas detection alarm**
10. **Fire controls and alarms**
11. **Backup controls**
    - Windscreen wiper emergency
    - Anchor ON/OFF
    - Buzzer silencer
12. **Cyclic selector**
    Controls the operation of the CCTV cameras on board.
13. **Thermal camera control panel**



Visibility from main helm station:



PROFILO
PROFILE

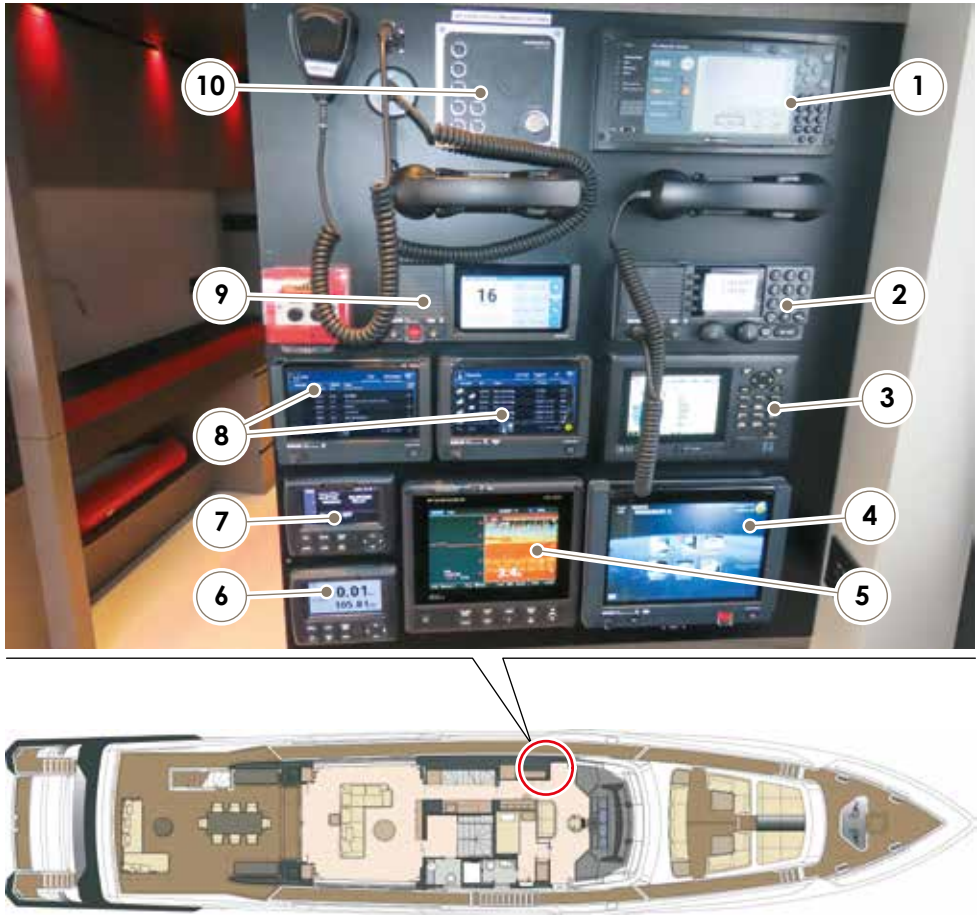


PONTE SUPERIORE
UPPER DECK

ICONA ICON	DESCRIZIONE DESCRIPTION
	Massimo settore cieco totale ammissibile ≤20° Max ammissible total blind sector ≤20°

4.1.2 Communication and synoptic panel

Behind the main helm station, on the left side, is the communications panel and the synoptic.
The following utilities are present:



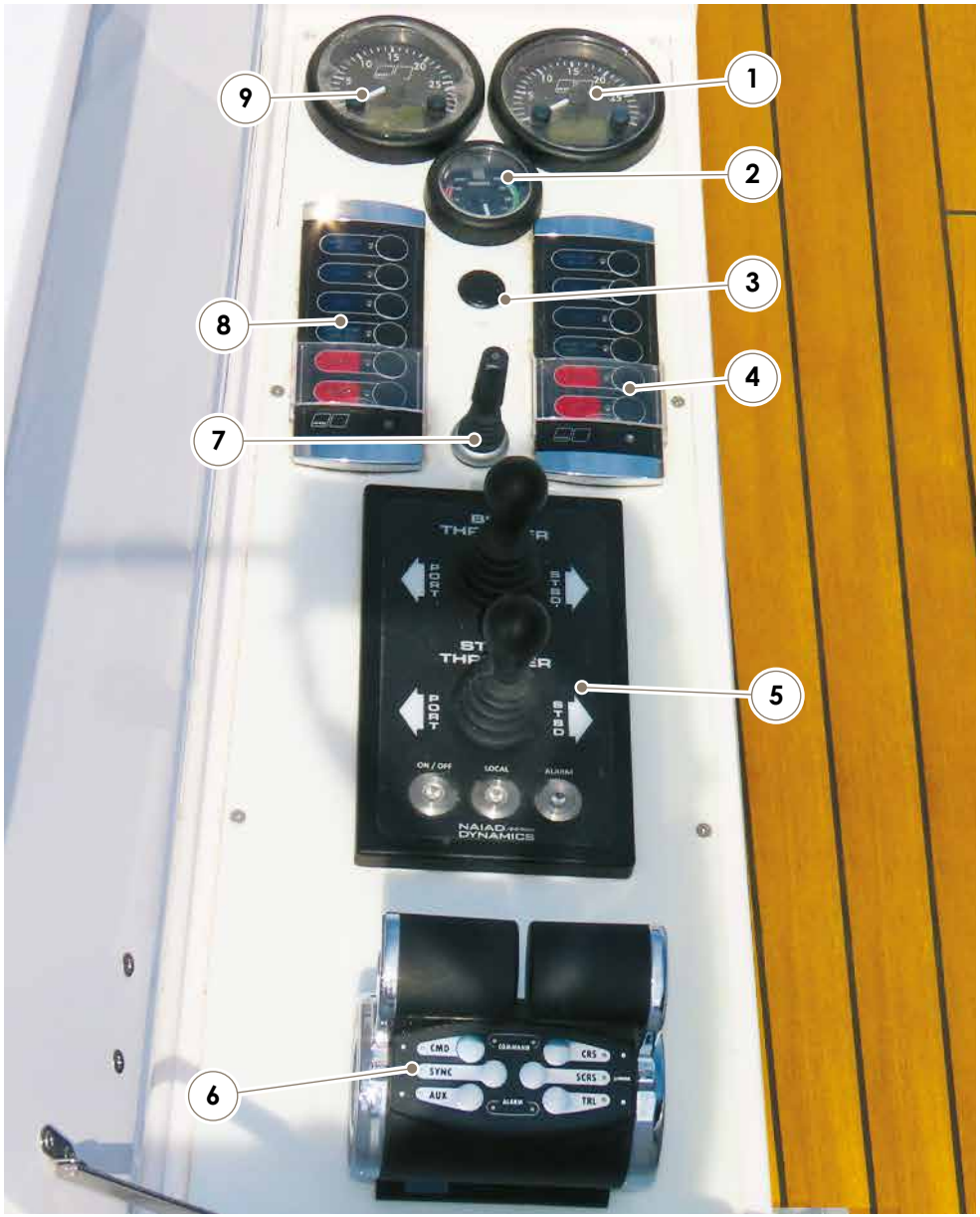
1. **Smoke and heat detection control unit**
2. **SSB Radiotelephone**
   The unit is an SSB MF/HF radiotelephone handset with a built-in DSC call monitor receiver. Data is displayed on a large, easy-to-read colour LCD screen.
3. **Navtex Weather Receiver**
   Enables the reception and display of Navtex weather information.
4. **Safety message terminal with distress button**
5. **Fishfinder**
6. **AIS receiver and transceiver**
   Displays symbols for ships equipped with ais.
   When a target is selected, ship information is displayed (mmsi (or name if available), heading, sog, cog, etc.).
7. **Bridge Navigational Watch Alarm System (BNWAS)**
   The purpose of BNWAS (Bridge Navigational Watch Alarm System) is to monitor bridge activity and detect any operator disability that could cause a maritime accident. BNWAS monitors the presence of the captain through the safety system functions.
8. **AIS control display**

9. VHF-DSC radiotelephone

Radiotelephone with Digital Selective Calling (DSC) The distress and call keys are protected against accidental operation. Single or group calls can be conveniently made from the keypad using either the internal directory or by directly dialling the number.

10. Intercom

4.1.3 Right and left manoeuvring position



1. **Starboard engine rev counter with built-in digital rev counter**
   Shows the number of revolutions and operating hours of the starboard engine.

2. **Rudder angle indicator**
   Analogue indicator used to view the rudder angle.

3. **Horn button**
   Used to operate the horn.

4. **Starboard engine control panel**
   Includes the buttons for turning on and stopping the starboard engine and the related monitoring indicators.

5. **Manoeuvring thrusters control panel**
   Features the commands to control the thrusters. The control panel features the START and STOP buttons, the operating lights and the joystick to control the thruster (with the screen-printed side of the arrows) of the stern and bow.

6. **Throttle**
   Via electrical signals, it controls the revolutions of the propulsion engines and the inverter gears.

7. **Tiller control**
   Allows the joystick to control the rudders.

8. **Left engine control panel**
   Includes the buttons for turning on and stopping the left engine and the related monitoring indicators.

9. **Left engine rev counter with built-in digital rev counter**
   Shows the number of revolutions and operating hours of the left engine.

4.1.4 Helm station in control room

1. **Multifunctional display**

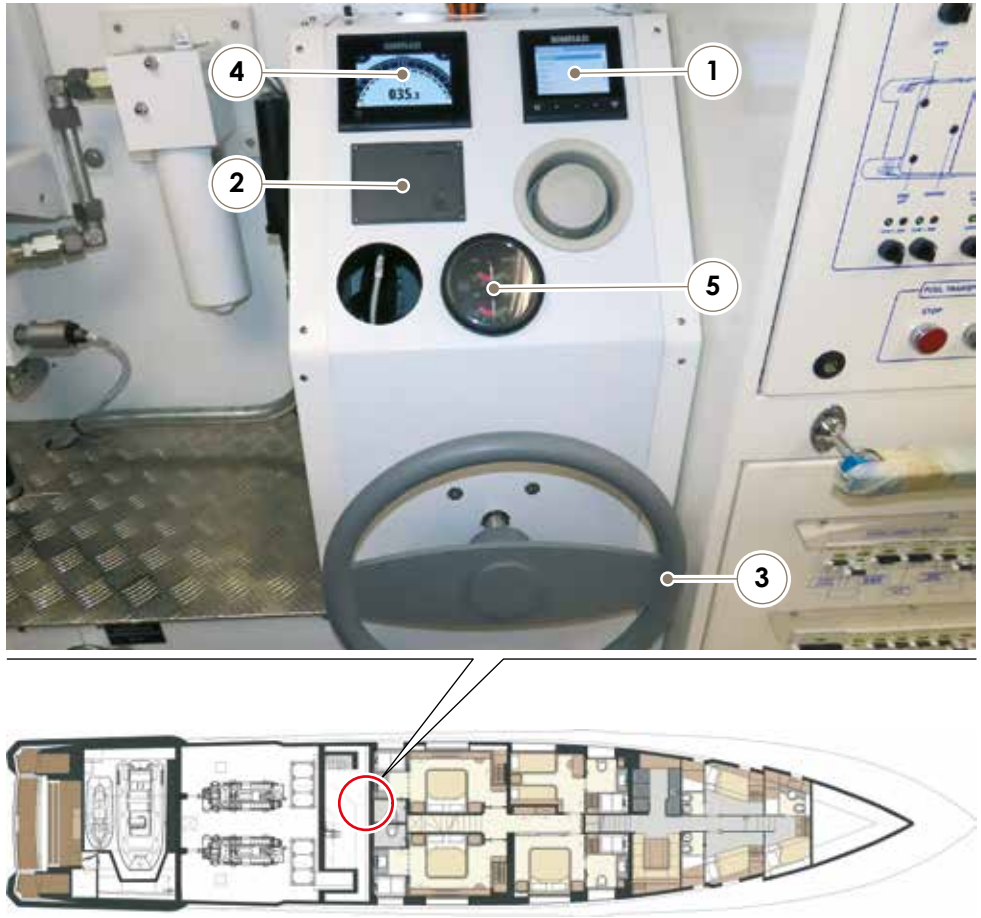
2. **Interphone**

3. **Steering wheel**
   It allows you to steer the ship.

> **WARNING**
> The steering wheels of the helm stations are not interlocked. Before starting to manoeuvre, make sure that the unused station is free from people who may interfere with the controls.

4. **Multifunctional display**

5. **Rudder angle indicator**
   It indicates the position of the rudders.



4.2 INSTRUMENTATION

4.2.1 VHF-DSC Radiotelephone

The VHF device allows communication on channels dedicated to Port Authority, rescue and radio stations.

To ask for rescue it is necessary to use the suitable VHF/FM channel: after each hour, as a legal rule, follow 6 minutes of silence, from minute 0 to minute 3 and from minute 30 to minute 33, so as to enable a better listening of the distress communications.

If the VHF is used, the distress call must be preceded and ended by the wording "**MAYDAY**, **MAYDAY**, **MAYDAY**".

It is therefore necessary to give your position, the yacht's name, the kind of damage and the kind of help you require (medical, mechanical, etc..).

CAUTION
Perform the "**MAYDAY**" rescue call, only in case of real need.

If, listening to the distress channel, a distress call that has not yet received an answer is picked up, it is possible to send a "**MAYDAY RELAY**, **MAYDAY RELAY**, **MAYDAY RELAY**", forwarding the communication of the person who requested rescue.

It can in fact happen that the distress call, carried out at open sea or by means of a poorly powered sender, is not received by the rescue team. Acting as a spokesman, you can help the message reach its destination successfully.

CAUTION
Perform the call "**MAYDAY RELAY**" only if there is a reasonable certainty that the message has not been collected by the rescue team so as not to engage the distress channel uselessly.

The use of the standard procedure avoids creating confusion and shortens the transmission time.
In case of danger, use only the phonetic alphabet recommended.

The VHF device is a vital and important communication line; please remember some fundamental rules:

- No transmission should be performed without reason;
- Listen before transmission so as to avoid interference with other senders;
- For distress calls, use and hold the best possible wireless contact;
- Always use your call identification or the name of the yacht in order to make yourself identifiable. The use of names or family names is not allowed;
- Send short and clear messages;
- For distress calls it is important to give the yacht's position, the kind of danger, the time passed in water, the kind of yacht and the number of persons involved;
- For other calls, once the contact with the person called has been established, transfer the call on an operation channel;
- Cut out transmission if required by a coastal station;
- Retune the radio when the call is ended.

MANUAL DISTRESS CALL:

- Select the distress channel by pressing the 16/C button or by scrolling through the channels with the volume buttons.
- Press the transmission key (PTT) on the radiotelephone and carry out the communication.

MAYDAY - MAYDAY - MAYDAY THIS IS:
repeat the yacht's name for 3 (three) times.

MAYDAY THIS IS:
repeat the yacht's name.

AT POSITION:
specify the position of the yacht.

SPECIFY THE DISTRESS CAUSE.

- Release the "PTT" transmission key.
- Wait for the reply for a few seconds.
- If you do not receive any reply, repeat the message at regular intervals, until receiving a reply.
- When you receive an answer, continue the conversation:
  - Hold down "PTT" while talking.
  - Release "PTT" while listening.
- It may be required to switch to a working channel.

AUTOMATIC DISTRESS CALL:

- Lift the cover and press and hold the DISTRESS button for about 3 seconds. The indicator light then lights and the radio beeps.
- The distress message will be automatically transmitted and repeated at irregular intervals on channel 70. Channel 16 will be available for communication after each transmission.
- If you do not receive a response after a short time, try to send the distress message manually.

WARNING
After the automatic SOS has been activated, it must be turned off by pressing the ON / C, otherwise the help message continues to be transmitted. The SOS function is automatically locked until the number of DSC has not been entered. Consult the manual provided by the manufacturer for the correct entry operations

- You can press INFO to view the information transmitted by the distress call.

NOTE
For further information on use and maintenance, please refer to the manufacturer's manual.

4.2.2 Throttle

The throttle is a system designed to control the revolutions of the engines and the speeds to the gear boxes by means of electric signals. The throttle have following performance features and functions.

- Sequence setting of gear box with engine speed.
- Start interlocking.
- Low/high idle run.
- Synchronization of engines for several propellers.
- Emergency control against back run.
- Gear box oil pressure interlocking (optional).

These features and operations facilitate the use of the throttles.

- Helm station indicator.
- Six two-coloured LEDs indicating the status and operation mode of control system.
- Acoustic transducer for indication of system status.

Advanced control modes

- **WARM UP:** mode increasing the engine rpm when the transmission is stalling on idle.
- **ONE LEVER:** mode which allows activating more propellers with gear shift and acceleration by means of a single lever control.

Taking control phases

- Set the levers of the throttle to idle position. The station cannot take control with throttle set to other positions. You hear the acoustic sequence of initialization.
- Press **CONTROL/SET** near the station. The **CONTROL LEDS** are steadily green to indicate that the station is taking control and that the operator is sending the idle run control. The acoustic signal is squelched in all stations.

WARNING
The next shifting of the throttle will engage the speed.

- Start the engine while sending the idle run control. If the levers of the throttle are not set to idle run, the interlocking start switch will prevent engine start.
- Shift the levers to the forward or backward retainer. The transmission starts and the **CONTROL LEDS** light up steadily red to indicate that the station has taken control and that the operator is sending the forward or backward run control.

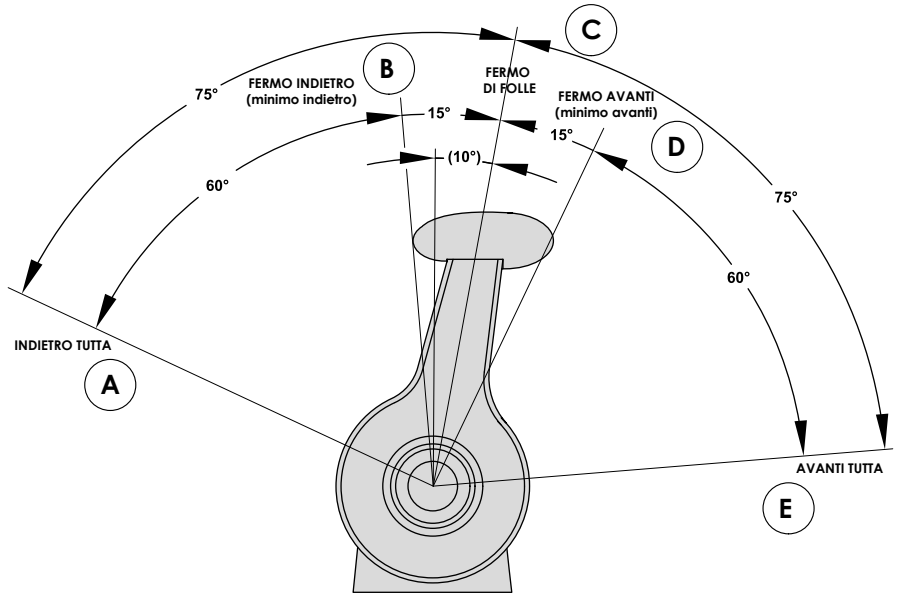
CAUTION
Only one helm station can be enabled at a time.

Basic operation

The throttle has three detents: astern, idle and ahead.
With levers positioned on idle detent "Neutral detent", the system sends idle run and minimum rpm control to the engines. By shifting one lever forwards "Astern detent" or backwards "Ahead detent" by 15°, the forward or reverse clutch engages. The engine holds the minimum rpm. By shifting same lever further, the engine's rpm increases proportionally to the shifting range.

Throttle detents

INDICATOR	LEVER POSITION
A	Full speed astern
B	Astern detent (idle astern)
C	Neutral detent
D	Ahead detent (idle ahead)
E	Full speed ahead



CAUTION

The idle detent (central position in relation to throttles shifting) is 10° ahead.
The shifting degrees are measured according to this position, not to vertical position of the throttle.

NOTE

For further information on use and maintenance, please refer to the manufacturer's manual.

4.2.3 Magnetic compass

A magnetic compass fitted on the dashboard of a yacht is inevitably close to the magnetic fields produced by the electric and electronic systems on board. This condition is called "variation".
Only a skilled technician should set the compass to correct the variation and supply an accurate deviation schedule. This procedure is called "compass compensation" or "compass setting".
Compensate the compass after the yacht launch or when replacing it, in order to eliminate possible mistakes due to the compass position.

Do not approach the compass to steel or iron objects or objects made of other ferrous materials (e.g. tools, wrenches, batteries, etc..). The ferrous materials close to the compass alter the readings and make them unreliable. Remove any unnecessary object near the compass.

NOTE
The compass delivered with the yacht is not compensated for change or deviation. Any electrical or metallic item located in its proximity may influence the compass. The yacht's owner is responsible for the compass compensation. Compensation should be carried out after installing additional electronic equipment or once a year after a prolonged period of mooring or ground lay-up. Compensation should be carried out only by authorized and qualified personnel. As a compass can rarely be set to zero variation on all courses, the technician in charge of its compensation should give you a card containing the corrections to be applied to navigation calculations. Always keep this card available on the main helm station.

NOTE
For further information on use and maintenance, please refer to the manufacturer's manual.

4.2.4 Engine control panel

The panel allows to start, stop and stop in emergency the propulsion engines.

CAUTION
The engines should be started with inverters in neutral and throttle levers at idle.

DANGER

Before starting the engine, make sure no one stands in the danger area in the engine room.

DANGER

Make sure the engines cannot be started by non-authorized personnel.

CAUTION

The emergency stop causes a heavy strain to engines, with a subsequent risk of damaging its parts. Use only in case of real need.

4.2.5 Thrusters control panel

On the control panel are the activation buttons and joysticks for controlling the manoeuvring thrusters (with the screen-printed side of the side arrows).

NOTE

For further information on use and maintenance, please refer to the manufacturer's manual.

4.2.6 Steering wheel

The rudder wheel is connected by means of an electric actuator to an electro-hydraulic control unit, which moves the rudders via hydraulic drive systems (cylinders).

NOTE
For further information on use and maintenance, please refer to the manufacturer's manual.

4.2.7 WATCHIT system (optional)

WATCHIT is an advanced system intended to assist the captain in operating the boat in a safer way by providing an alert about potential risks both over and under the water.

This system processes data from the on-board sensors (GPS position, heading, speed, rudder angle, LOG, wind indicator, etc..) and from the maps data which allows to constantly assess the risk of collision and issue warnings in real time to prevent accidents at sea.

CAUTION

Do not use the system as a navigational tool as it is not intended as such.
This system is intended only as an aid to navigation and does not substitute safe and alert yacht navigation and operation by a qualified operator.

Once the system was installed on board your yacht and was calibrated, there is no need to actively operate the system. The only action needs to be taken before leaving your port or marine is making sure the power supply switch/fuse in ON and the system will automatically power up.

The system has 4 modes of operation:

- **Normal Mode** – In this mode the system will generate a vocal an obstacle alert in case it has detected a potential hazard on the yacht's path. The alert will be heard 30 seconds before impact in order to allow enough time for the skipper to react.
- **Crowd Mode** – Whenever the system detects multiple objects in the near surrounding and the yacht speed is less than 15 Knots - the system will automatically switch to Crowd Mode and the vocal alerts will be replaced with Beeps to inform the captain about any potential risks. The beeps frequency will increase as the risking ob-

ject will get closer to the yacht.

- **Anchor Mode** – Whenever the system has detected that the yacht has stopped – it will automatically switch to Anchor Mode. Incase the system has detected the yacht is drifting, it will popup a Drifting Notification. After 5 minutes incase no one acknowledge the notification – a drifting alert will be triggered.
- **Marina Mode** – Whenever the yacht has entered a marina, the system will switch to Marina Mode. In this mode no vocal alerts will be heard.

NOTE

For further information on use and maintenance, please refer to the manufacturer's manual.

CUSTOM LINE 140’

5

Water systems

5.1 FRESH WATER SYSTEM

The fresh water tank has a capacity of 4000 l and is equipped with an inspection lid on which all connections are fitted:

- **Water inlet**
  Located on the walk-around of the main deck.

- **Fresh water tank vent**
  It is located on the starboard side.

- **Tank level electric check**
  It checks the fresh water level in the tank. The tank level is indicated through the monitoring system.

- **Desalinated water inlet**
  In addition to boarding, it is possible to power the system through a watermaker (250+250 l/h) located in the bilge of the fore crew cabin.

The watermakers draw sea water through a centralized sea cock; while the water flows in through the membranes under pressure, the salt is removed and fresh water is then sent to the tank.

For a detailed description and the instructions for use of the various devices, please refer to the Manufacturer's Manuals supplied separately.

The system can be supplied also through shore water inlet.
On the shore supply line there is a pressure relief valve.

The system consists of the following main equipment.

- Autoclave pumps: installed in the bilge of the crew galley, they draw water from the fresh water tank and make it available to the various on-board utilities (sinks, showers, etc.)
- Watermaker: draws sea water and, once desalinated, feeds the fresh water tank;
- Water heaters: placed under the galley bilge and crew dining room, they heat the water;
- Distribution manifolds: they ensure the on-board utilities are fed with fresh water;
- UV water sterilizer (optional);
- Activated carbon filter (optional);
- Water softener (optional).

CAUTION
Notwithstanding the presence of a pressure limiter, check the pressure on the pressure gauge installed near the pumps.

When filling fresh water by means of the direct inlet from shore, the fresh water tank is not filled. The fresh water tank can only be filled using the side filling inlets.

CAUTION
Before refilling the fresh water tank, check that the water supplied by the shore fresh water system is potable.

5.1.1 Cold and hot fresh water system

The system is kept under pressure by a pump equipped with pressure switches.
The pumps supply the system by drawing water from the tank; the water flowing through pipes and manifolds supplies following uses:

- Owner's bathroom
- Crew bathrooms
- VIP bathrooms
- Guest's bathrooms
- Service bathroom
- Galley
- Crew utility room
- Watermaker membrane washing
- Engine room tap
- Showers and faucets main deck
- Glasses wash
- Main deck wash
- Washer-dryer
- Dishwasher
- Sun deck service cabinet
- Upper deck shower
- Sun deck whirpool (optional)
- Deck washdown taps for bow and walkways
- Water heater

Water is drawn from the tank by means of pumps and delivered to the water heater to be heated.
Both water heaters have a capacity of 100 l. Each water heater is equipped with a thermostatic valve that allows the temperature control.
By means of a distribution manifold, the hot water is conveyed to following uses:

- Owner's bathroom
- VIP bathrooms
- Guests bathrooms
- Service bathrooms
- Crew bathrooms
- Galley
- Sun deck whirpool (optional)
- Sun deck shower
- Sun deck service cabinets
- Yacht bow shower
- Stern shower

The pump recirculates hot water constantly and makes it available as soon as you open the tap.

WARNING
During winter, if you do not use the water, drain the water heaters to avoid cracks due to freezing.

CAUTION
If warm water is not available, because the fresh water circuit is empty, switch off the water heaters to prevent damaging it resistor.

5.1.2 Watermaker

To solve the problem of water supply and to ensure a constant availability also during long navigations, the yacht has been provided with an efficient watermaker system.

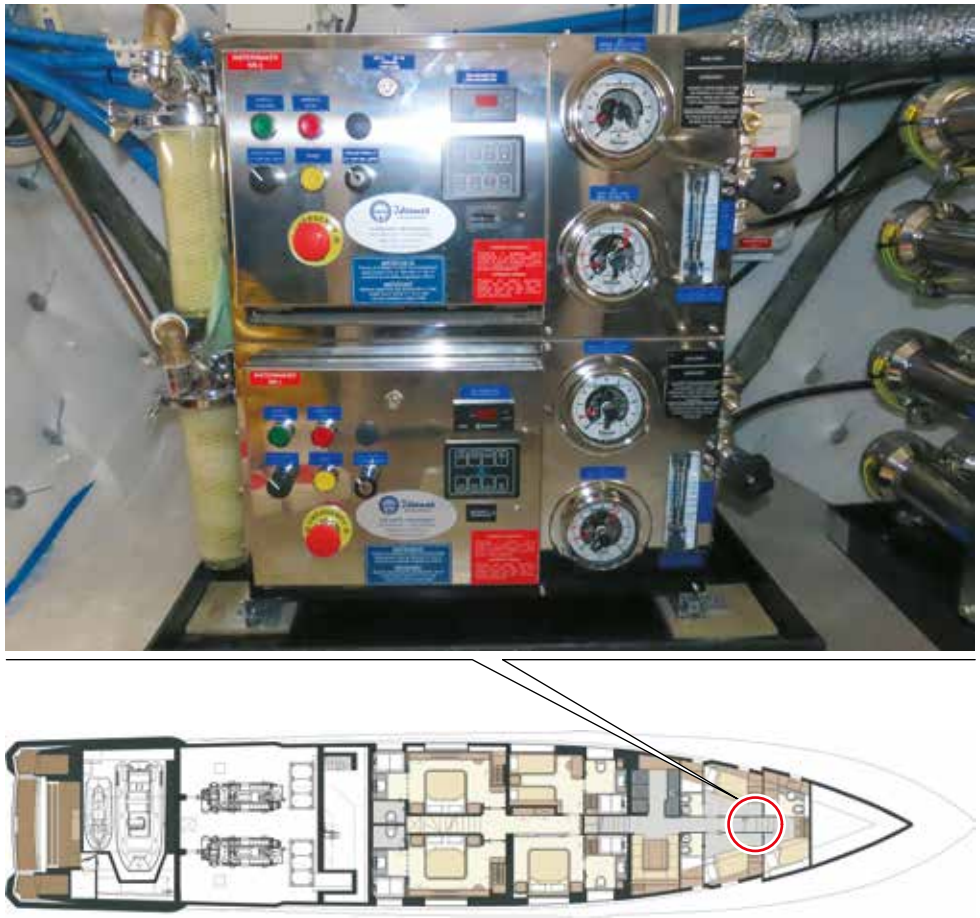
The watermaker is installed in the bilge of the bow crew cabin. It draws the sea water by means of an electric pump through the dedicated seacock and, after filtering and treating the sea water, it sends it to the on-board tank.

Before the sea water is treated, it is filtered in order to remove all "suspended" particles, such as small seaweeds and impurities in the water, which could clog the inner membranes of the watermaker even very quickly.

The watermaker produces bacteriologically pure water and can therefore be used for all on-board and cooking applications.
Excess water and salt concentrate are discharged overboard.

In order to prevent the problem of the deposit of salts on the inner membranes and their crystallization over time, the system has been provided with an end of cycle flushing system which uses fresh water. Given the importance of this operation, clean the inner membranes of the watermaker according to the procedures and the schedules indicated by the manufacturer.

CAUTION
If the system is still for longer than 5 days, it is necessary to wash it with clean water for 15 minutes, in order to change the water kept in the membranes.



CAUTION

The watermakers are kept in good condition by following scrupulously the indication of the specific manual.
Bad maintenance can lead to production of non-potable water unsuitable for food use.

CAUTION

The watermakers do not eliminate all dangerous agents present in polluted waters (see specific manual).
Use the watermaker only in clean waters, to avoid contamination of its membranes, tanks and of the whole circuit.

NOTE

For further information on use and maintenance, please refer to the manufacturer's manual.

MAINTENANCE

WATERMAKER
At least once a month verify:
- The correct operation;
- The oil level in the pump.

Periodically perform a fresh water washing cycle.
At least once a year, change the oil of the pump.
When necessary clean the filter.

5.1.3 Maintenance of fresh water system

To carry out maintenance, or if needed, it is possible to isolate parts of the system or individual services without affecting the operation of the general system by acting on the valves positioned on the distribution manifolds.

WARNING

The high temperature may cause the softening of the pipes and the consequent loosening of joints. Then verify the tightness, especially for those positioned in the vicinity of heat sources.

WARNING

To stop a failure in the hot water circuit can act on the valves in the inlet to the water heater.

WARNING

At least once a month, completely empty the fresh water tank and rinse it a couple of times with clean fresh water. This in order to completely renew the water present in the deposits and at the same time wash the tanks themselves.
Remove the caps, check, clean, disinfect and restore the closures taking care to check the O-ring state.
1 At least once a year to make an internal tank cleaning.
Periodically pour a specific disinfectant into the tank from the fill inlet according to the doses recommended by the Manufacturer in order to prevent colonies of bacteria from forming in the system.

NOTE
For further information on use and maintenance, please refer to the manufacturer's manual.

WARNING
If you do not plan to use the yacht in winter, it is best to empty the water heaters to prevent failures due to freezing.

CAUTION
The boarding cap has the words "WATER" to prevent the accidental introduction of different liquids.
To avoid damage to the system and the tank, it is advisable to use gravity refuelling rather than pressure refuelling.

CAUTION
The fresh water circuit, and in particular the tanks, must be periodically sanitized pouring in embarking a specific disinfectant solution.
It is advisable not to drink the water coming from the board.

CAUTION
Cater periodically inspect the fresh water circuit of the bilges and to detect the possible presence of leaks.
Repairing leaks by removing the system under pressure in order to avoid furnishing and electrical equipment damage.

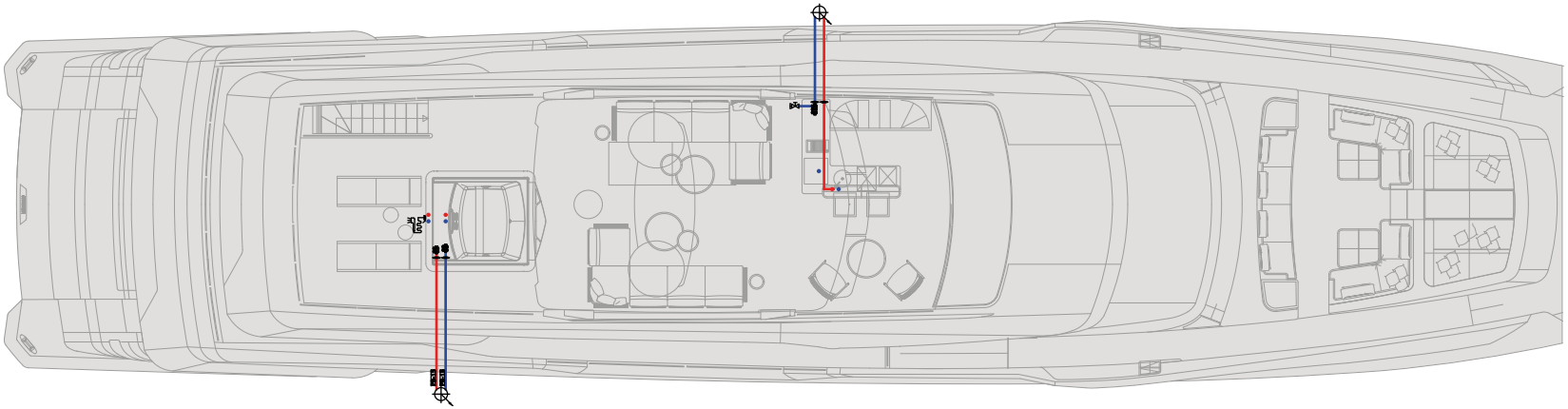
WARNING
It is advisable to optimise the use of water, especially during off-shore navigation!

CAUTION
In case you do not have hot water, due to system fresh water emptying, switch off the water heater in order to avoid damage to the resistance.

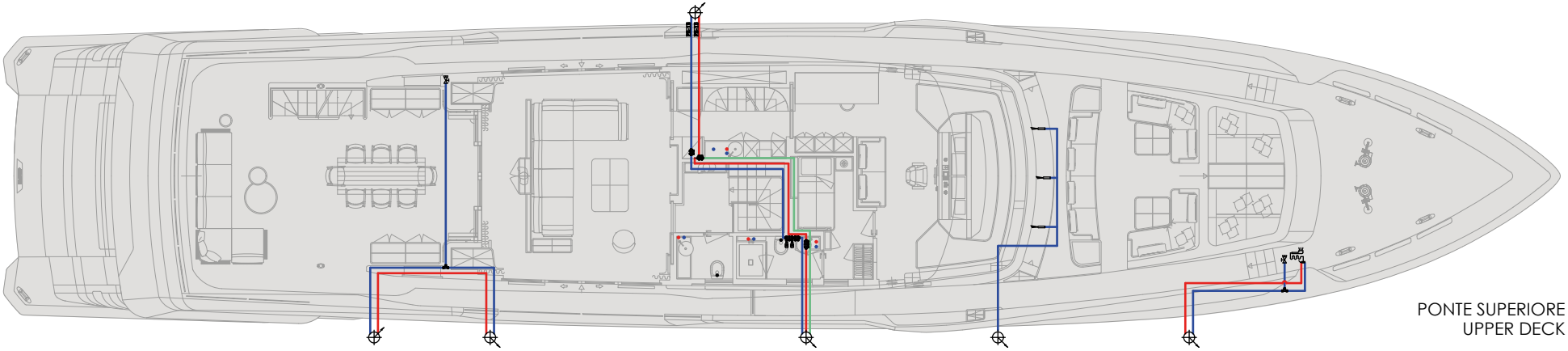
COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Fresh water tank	Cleaning and check	At least once a month, completely empty the fresh water tank and rinse it a couple of times with clean fresh water. This should be done to completely change the water in the tanks and at the same time wash the tank itself. Check, clean, disinfect and restore the fastenings while taking care to check the condition of the O-ring. Periodically pour a specific disinfectant into the tank from the fill inlet according to the doses recommended by the Manufacturer in order to prevent colonies of bacteria from forming in the system.
Fresh water system	Check	In case of need or of maintenance, by acting on the valves installed on the distribution manifolds, it is possible to cut out parts of the system or single uses, without involving the operation of the general system. Check if along the hydraulic circuit, where possible, are present leaks due to the damage of piping. The main manifolds are located on the bilge corresponding to starboard crew cabin and in the technical room. **WARNING** In case of need, break or pollution of the tanks, they can be replaced. Contact Service Department. **CAUTION** The fresh water circuit, and particularly the tanks, must be sanitized periodically by pouring in the case a specific disinfectant solution.

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Electric pumps	Cleaning and check	Periodically check for the presence of leaks. Before carrying out maintenance on the pumps, prevent their accidental priming. Check daily that the expansion tank located downstream the electric pumps shows the correct pressure in the air cushion. Regularly check that fittings are tightly closed and free from corrosion. Check the conditions and the cleanliness of the pumps and of the expansion tank; if necessary, clean with well diluted detergent and dry accurately. ***NOTE*** For further information on use and maintenance, please refer to the manufacturer's manual.  **DANGER** Before carrying out maintenance on the pumps, prevent their accidental priming.
Electric water heaters	Cleaning and check	 **WARNING** During winter, if you do not use the yacht, drain all the circuits where there is fresh water to prevent cracks due to freezing. **CAUTION** If warm water is not available, because of the fresh water circuit discharge, switch off the water heater to prevent damaging it resistor.

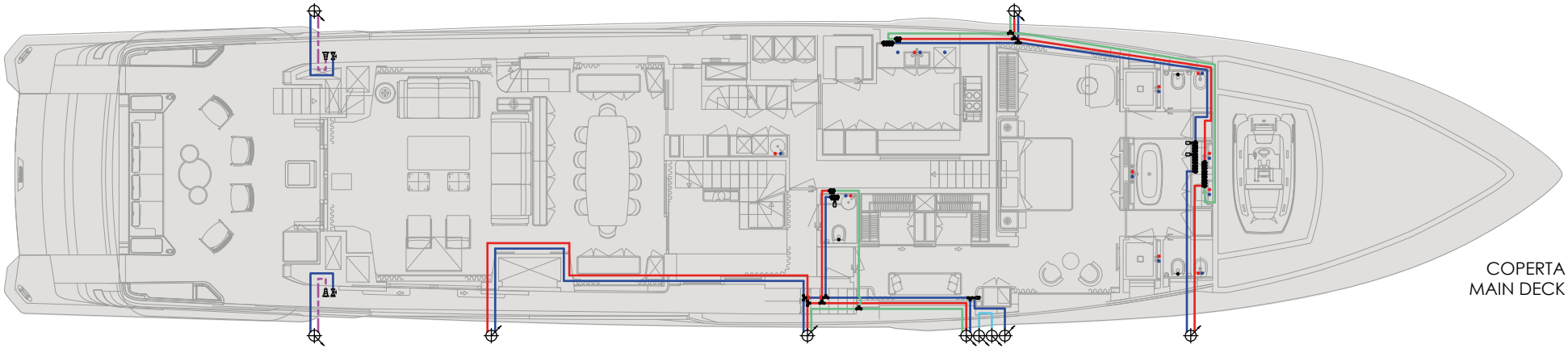
Fresh water system diagram:



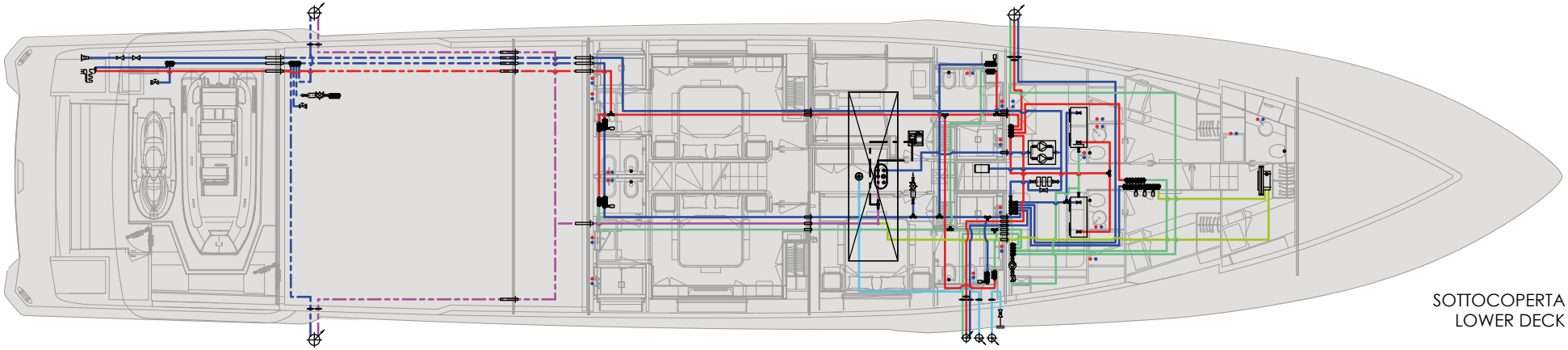
PONTE SOLE
SUN DECK



PONTE SUPERIORE
UPPER DECK



COPERTA
MAIN DECK



SOTTOCOPERTA
LOWER DECK

ICONA ICON	DESCRIZIONE DESCRIPTION
	Linea acqua fredda Fresh water line
	Linea acqua calda Hot water line
	Linea ricircolo acqua calda Hot water circulation line
	Linea sfiato Air vent line
	Linea imbarco Filling line
	Linea dissalatore Watermaker line
	Cavo elettrico Electrical cable
	Linee opt (tutti i colori) Opt line (all colors)
	Valvola a sfera Ball valve
	Valvola di non ritorno Non return valve
E.V.	Elettrovalvola con filtro Electrovalve with filter
	Presa lavaggio ponte Deck washing station
F1	Addolcitore Water softner

ICONA ICON	DESCRIZIONE DESCRIPTION
F2	Filtro ai carboni attivi Carbon filter
F3	Sterilizzatore UV UV sterilizer
	Ugello lavavetri Washer nozzle
	Passaparatia stagno Watertight bulkead penetration
	Passaggio a ponte stagno Watertight deck penetration
	Al ponte superiore To upper deck
	Al ponte inferiore to lower deck
	Autoclavi Water system
	Pompa ricircolo Water recirculation pump
200L	Boiler Water heater
	Dissalatore Watermaker
	Riduttore di pressione Pressure reducer
	Imbarco acqua Fresh water filling

ICONA ICON	DESCRIZIONE DESCRIPTION
FRESH WATER	Collettore - valvola a sfera Manifold - ball valve
HOT WATER	Collettore valvolato Manifold with valve
CIRC. WATER	Collettore valvolato Manifold with valve
	Collettore valvolato Manifold with valve
	Collettore valvolato Manifold with valve
	Collettore valvolato Manifold with valve
	Disconnettore Backflow preventer
STR	Filtro a Y Y strainer
	Vaso idrico Expansion tank
	Doccetta Shower head
	Stazione dosaggio ioni argento silver ions dosing station

5.2 GREY WATER SYSTEM

The grey water system consists of 2 electric pumps located in the engine room and below the stairs leading to the crew quarters, a storage tank with a capacity of 1500 litres located under the left-hand side guest cabin and 5 boxes with an overflow alarm.

The water discharged by showers, wash tubs and wash basins falls by gravity inside the cases and is automatically drained into the main tank.

The condensation water produced by the fan coils is collected by gravity inside 5 recovery boxes and from these automatically discharged off board.

All liquids from services on the upper deck or sun deck are discharged directly into the scuppers.
The tank level can then be monitored via the monitors of the monitoring system.

ENVIRONMENT
Grey water must not be discharged in harbour, inside marinas or near beaches: check the level of the crates during the return from navigation, if necessary, discharge always verifying the position of the ship.

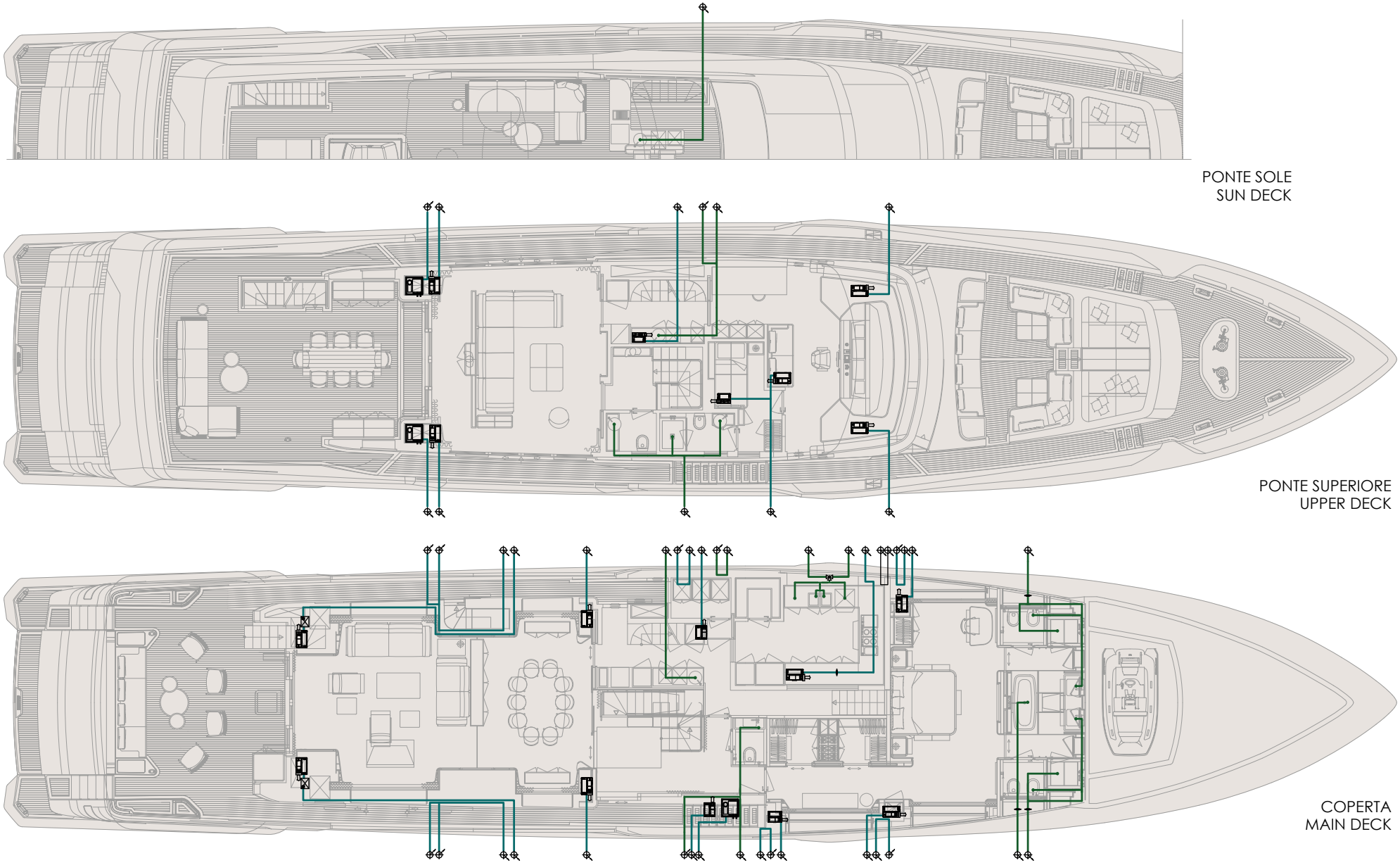
WARNING
In case of emergency it is possible to drain the main grey waters tank, by means of the black waters pump, by duly shunting the 3-way valves, located on both pumps.

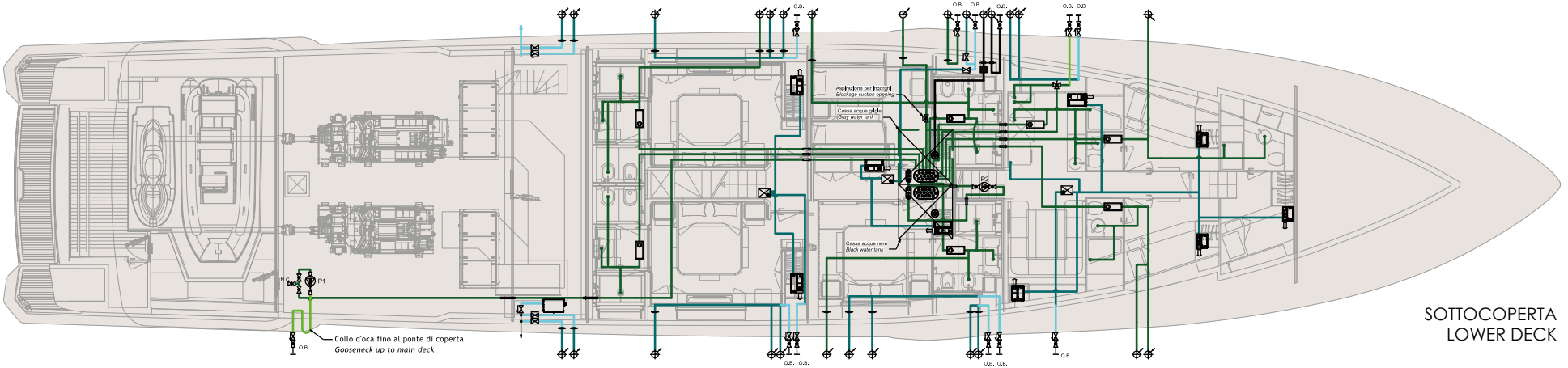
Thanks to some selection valves installed under the sinks, the drains of the galley sinks can be conveyed either directly overboard or into the grey water tank.

CAUTION
Before winter storage, completely empty the system and the grey water tank to avoid any freezing issues.

CAUTION
Do not pour corrosive products into sinks or showers or at high temperatures as they could cause serious damage to the grey water system.

Grey water system diagram:





SOTTOCOPERTA
LOWER DECK

ICONA ICON	DESCRIZIONE DESCRIPTION
	Valvola a sfera Ball valve
	Valvola a sfera a 3 vie 3-way ball valve
	Valvola di non ritorno Non return valve
	Flangia di scarico MARPOL MARPOL overboard discharge
	Filtro anti odori No-smell filter
	Passaggio stagno a ponte Watertight deck penetration
	Passaparatia stagno Watertight bulkhead penetration
	Fupri bordo Overboard

ICONA ICON	DESCRIZIONE DESCRIPTION
	Cassetta di rilancio Automatic pumping unit
	Cassetta di rilancio Automatic pumping unit
	Giunto compensatore Flexible joint
	Al ponte superiore To upper deck
	Al ponte inferiore To lower deck
	Riduzione Riduction
P1	Pompa Pump
P2	Pompa Pump

ICONA ICON	DESCRIZIONE DESCRIPTION
	Linea acque grigie Grey water line
	Linea acque grigie Grey water line
	Linea sfiato Air vent
	Drenaggio fancoil Fancoil drainage
	Drenaggio fancoil Fancoil drainage
	Linee opt (per tutti i colori) Opt line (all colors)

5.3 BLACK WATER SYSTEM

The black water system consists of an electric pump, located in the engine room, a collection tank with a capacity of 1500 litres inside which the toilet waste is discharged and a black water treatment system that separates water from mud waste. The pump discharges the contents of the waste water tank off-board.

The drain flange, located on the left starboard side, can be used to draw and drain the contents of the waste water tank and mudbox. This task requires the activation of the system's ball valves.

The treatment system, located in the engine room, separates the aqueous part of the waste water, which is discharged outboard, from the solid part (mud), which is collected in a dedicated tank.
The system consists of:

- Macerator;
- Microfiltration;
- UV lamp.

NOTE
For further information on use and maintenance, please refer to the manufacturer's manual.

The main electrical panel in the control room features the WC full tank warning lights (deactivated), the full tank pre-alarm and the manual tank emptying activation control.

The discharge of black water from the shore directly into the sewer system properly is the solution of minimal environmental impact to be taken whenever it is moored in place and equipped.

CAUTION
Before leaving the harbour, check the level indicators of the waste water box on the main electrical panel to perform suction from the shore if necessary.

Before entering port, you should check the tank level and decide whether you should discharge at sea or use the harbour facilities by checking in advance if your destination port is equipped for tank emptying via the discharge flange MARPOL.
To increase the reliability and safety of the system, in case of a fault of the black water pump, it is possible to drain by means of the grey water pump. Under such condition, it is necessary to ensure the proper opening of the concerned manifold valves.

CAUTION
During the suction black water from the shore is strictly prohibited:

- Using the toilet;
- Press the command button then operate the pump discharge overboard.

WARNING
Before use, make sure:

- Enable the utility by setting the WC system magneto-thermal switch to ON if necessary;
- The absence of the light high-level holding tank.

CAUTION

We recommend regularly monitor the level black water from monitoring system panel (Levels) to achieve optimum use of the retention system in compliance with environmental regulations locally in force.

CAUTION

In case of sinking hazard, if escaping condition allow you this, close the ball valve of the **black water drain.**

CAUTION

Totally empty the system and the black water tank before the lay-up period in order to prevent any problems with freezing.

CAUTION

For all pleasure yachts, drain at sea of on-board toilets is forbidden inside harbours, landings and moorings dedicated to crafts' anchor riding, and also within the limit of beaches visited by swimmers, as stated in the single decrees of the Port Authorities.

CAUTION

All pleasure yachts classified for a number of passengers exceeding the 15 units and equipped with toilets can drain the untreated sewage at sea according to MARPOL rules, only BEYOND the limit of 12 (twelve) miles from the coast, while navigating at fixed track and at the maximum speed allowed, anyway not lower than 4 knots.

CAUTION

Direct sea discharge can only be carried out in the event of an emergency.

The holding tank is equipped with a sea water washing system. In order to wash the tank, you have to open the valve concerned, located on the tank door and to start the concerned pump.
This operation has to be performed periodically at a variable time interval, according to the use of the tank.
In addition to this, we recommend to constantly check the filling of the tank, so as to disconnect the pump when necessary.

WARNING

The valve for washing the black water tank must always be closed except during washing operations. If the valve remains open, the tank can be flooded and sea water can be boarded.

WARNING

The waste water tank must only be washed where permitted by applicable legislation or, in port, only on condition that it is connected to the shore disposal system.

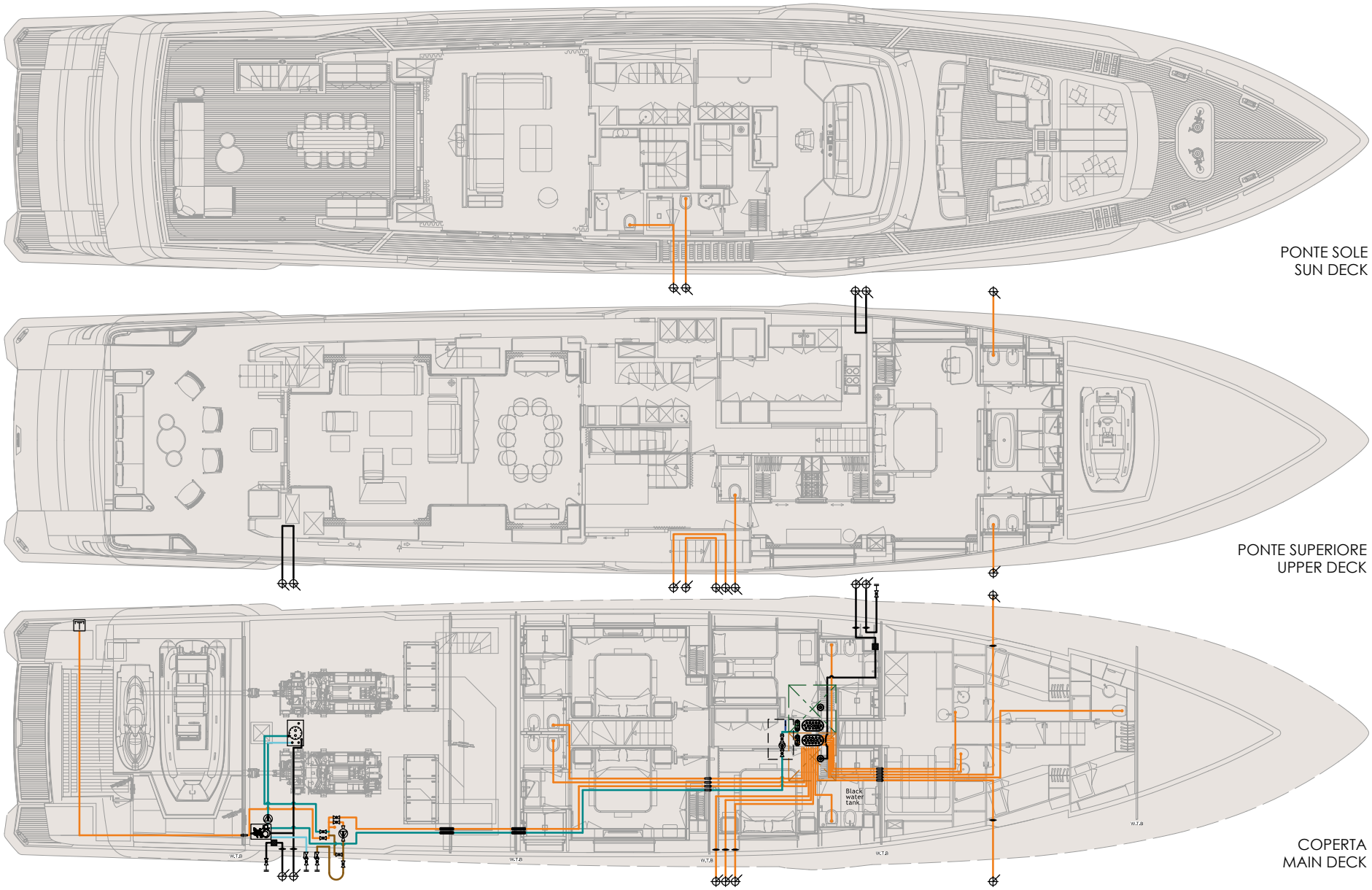
WARNING

When using chemical products, follow the manufacturer indications meticulously and use the suitable protection devices.

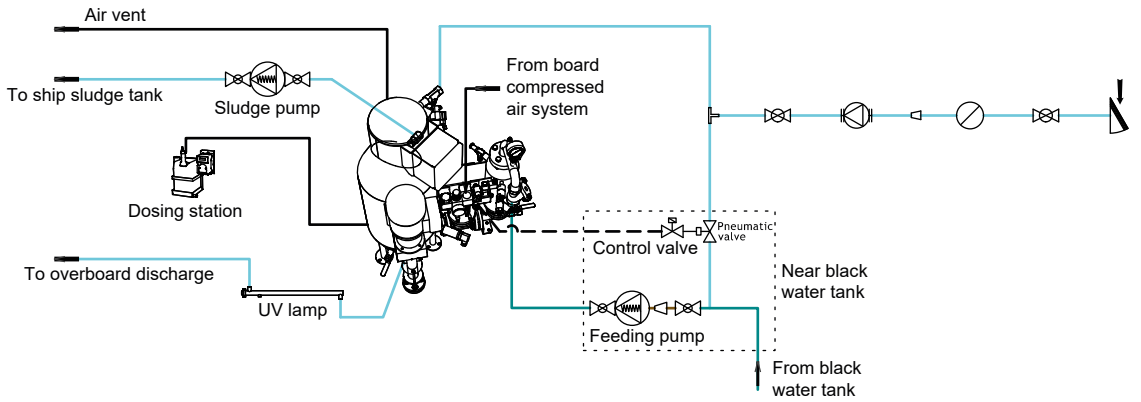
DANGER

The washing of the holding tank must be performed by experienced personnel and followed carefully until the tank is empty. An excessive pump operation, can cause the boarding of a large quantity of water with consequent overfilling and bilge flooding.

Black water system diagram:



DETAIL 1
HAMANN 125 HL-CONT COMPACT SYSTEM



ICONA ICON	DESCRIZIONE DESCRIPTION
	Filtro anti odori No-smell filter
	Passaparatia stagno Watertight bulkhead penetrat.
	Passaggio stagno a ponte Watertight deck penetration
	Al ponte superiore To upper deck
	Al ponte inferiore To lower deck
	Trattamento acque nere Sewage treatment
	Cassa fanghi Seawage tank

ICONA ICON	DESCRIZIONE DESCRIPTION
	Riduzione Riduction
P1	Pompa Pump
P2	Pompa fancghi Sludge pump
P3	Pompa di alimentazione Feeding pump
	Valvola a sfera Ball valve
	Fuori bordo Overboard
	Valvola di non ritorno Non return valve

ICONA ICON	DESCRIZIONE DESCRIPTION
	Filtro acqua mare Sea water strainer
	Flangia di scarico marpol Marpol outboard discharge
	Linea qcaue nere Black water line
	Linea sfiato Air vent
	Linea Hammann Hammann line
	Linee OPT OPT line

5.3.1 Operation of the toilet

The toilet of the bathrooms are of the "Saninautico" type ceramic, with related control panels on which there are two backlit buttons:

1. Button "before";
2. Button "after".

After 2 minutes of service the backlit buttons 1 and 2 switch off and the device sets to energy saving mode.

The pressure of one of the two buttons will restore the backlight.
The toilet will not discharge when the tank sensor indicates the full state.

To force unloading hold the button for more than 6 seconds.

To deactivate or reactivate the tank protection is necessary to press both buttons and for two times in quick succession.

CAUTION
We suggest not to use the **residential function** of the toilet, as the water inside the toilet could splash out and wet the floor due to the yacht's rolling.

CAUTION
Except for organic waste, only very thin toilet paper can be discharged into the sea toilets. Paper tissues or handkerchiefs and sanitary napkins may clog and damage the sanitary system.

CAUTION
Make sure that toilets are electrically powered and that the black water system is operating before using them.

WARNING
When the yacht is not operated for long periods of time, close the toilet overboard drain valve.

CAUTION
Forcing the toilet discharge can cause overfill of the tank.

CAUTION
The full tank condition is indicated by the red icon light on the dashboard synoptic. Forcing the WC discharge can cause the tank's overfilling.

CAUTION
The disabling of toilet drain protection can cause the tank to overfill.

5.3.2 Maintenance of black and grey water system

The tanks should be cleaned two or three times a year, ensuring that the floats and the suction pumps are clean and not clogged.
On each tank there is a tap for washing.

Remember to shunt correctly the valves on the fire-fighting/bilge electric pumps and on the fire-fighting manifold in the technical room.
Before using the tap, activate the switch that turns on the pump to wash the tank.

It is advisable to pour a sterilizing product (Amuchina, Clorichina or similar), into the drains of washbasins, etc., to prevent the formation of bacteria with the resulting bad smell release.
Anyway the best kind of maintenance for this kind of systems, is to use them correctly.
For maintenance of the WC itself, refer to the relevant manual.

Descaling of discharge tubes

Before descaling check following:
The majority of the toilet bowls valves are not built for a "return" pressure. To avoid spillages during the descaling treatment the toilet bowls have to be disconnected and the pipes have to be plugged.

How to descale piping:
- Fill the piping with a mix of phosphoric acid (70 -90%) and water: 10% acid and 90% water;
- Make sure that the mix flows. Let the mix flow for 24 hours;
- Rinse with water.

If sediments are still there, repeat the above procedure with a mix of 10% of pyropotassic tetraphosphate.

5.4 SCUPPERS SYSTEM

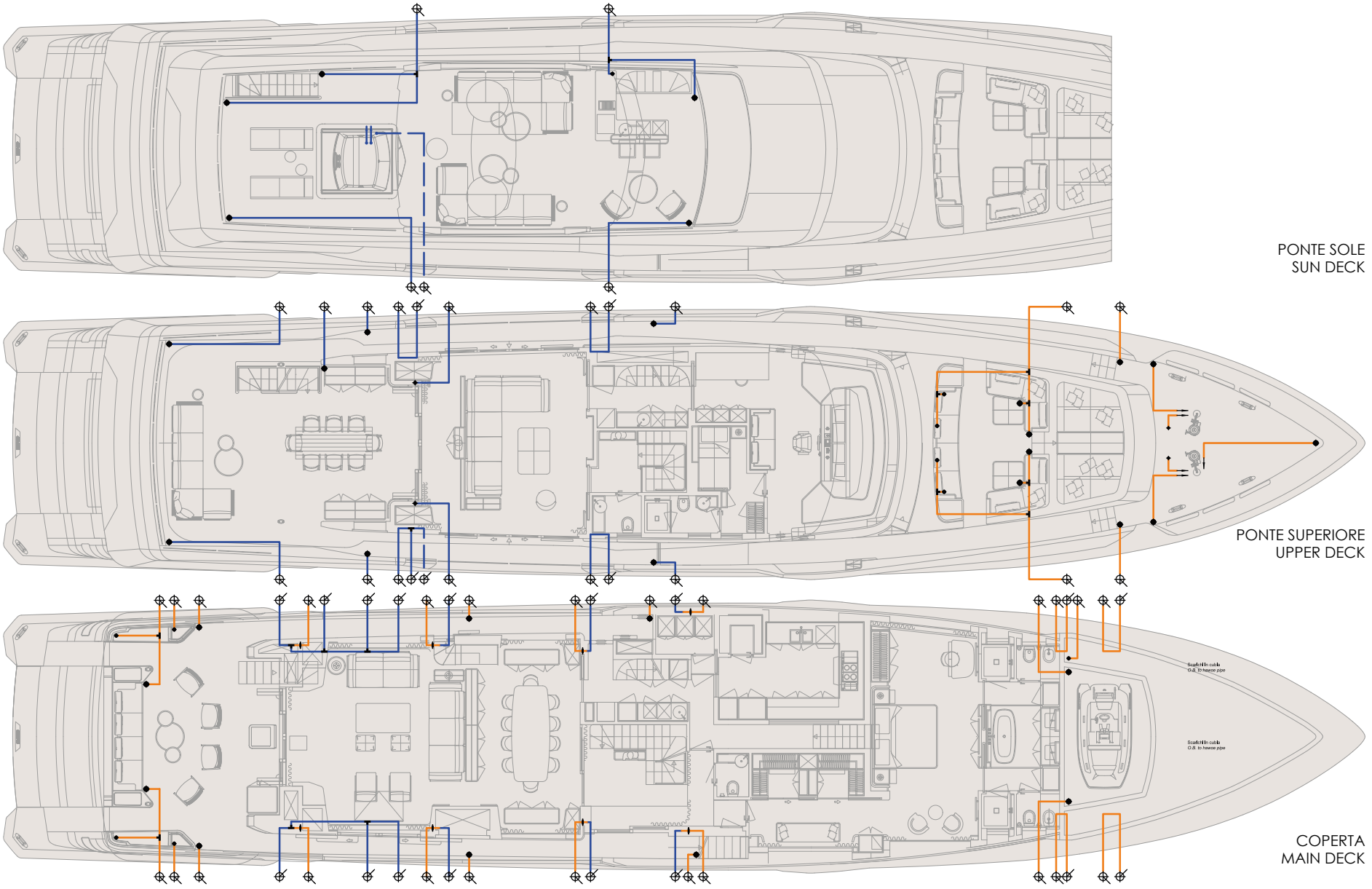
Via suitable holes and drainage channels, the scupper system allows rainwater, sea water or other water that may fall onto the yacht to flow quickly off it.
All the water collected by the scuppers is conveyed through collector pipes located along the walls and discharged outboard.

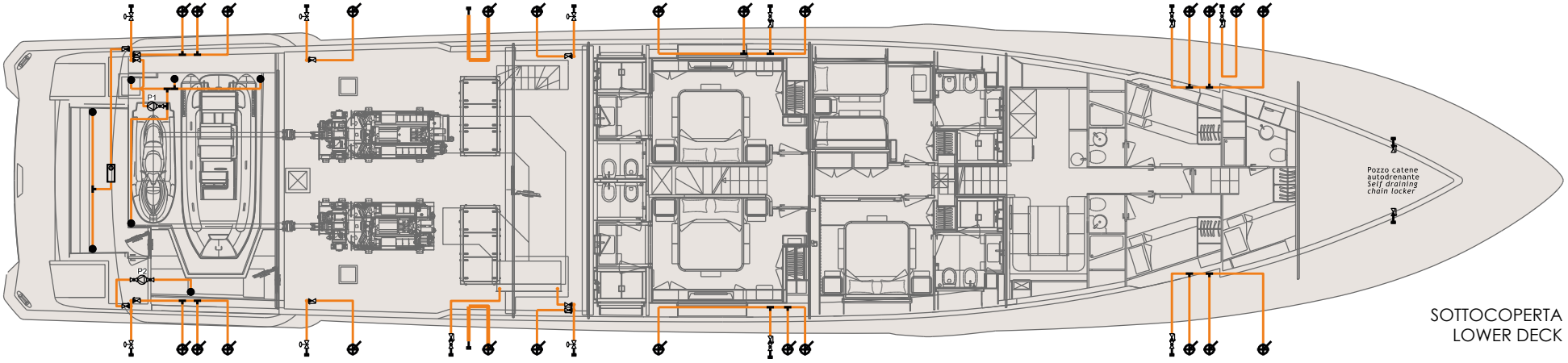
The total or partial clogging of one or of more scuppers must absolutely be prevented, because it is a cause of flooding and consequent loss of stability by the yacht and its structures.

CAUTION
Always check the correct water flow towards the scuppers.
The partial or total clogging of one or more scuppers is a possible cause of damage for the yacht structure and of loss of stability.

CAUTION
Avoid that incorrectly stowed objects clog the scuppers.

Scupper system diagram:





SOTTOCOPERTA
LOWER DECK

ICONA ICON	DESCRIZIONE DESCRIPTION
	Ombrinale tipo A Scupper type A
	Ombrinale tipo B Scupper type B
	Ombrinale tipo C Scupper type C
	Valvola di non ritorno Non-return valve
	Scarico fuori bordo Overboard discharge
	Connessione di raccordo Junction connection

ICONA ICON	DESCRIZIONE DESCRIPTION
	Valvola a sfera Ball valve
	Valvola lug a volantino Lug walve with handwheel
	Al ponte superiore To upper deck
	Al ponte inferiore To lower deck
P1	Pompa Pump

ICONA ICON	DESCRIZIONE DESCRIPTION
P2	Pompa Pump
	Cassetta automatica rilancio Automatic pumping unit
	Passaggio stagno a ponte Watertight deck penetration
	Tubo in PVC PVC pipe
	Tubo in CuNi CuNi pipe

5.5 BILGE SYSTEM

The suction of bilge water is carried out through the central bilge suction system, consisting of a main bilge pump, which by means of a manifold and special pipes equipped with suction pine cones, sucks water from the bilge of the various rooms.
In case of emergency it is possible to suck water from the bilge by means of the fire fighting system sea water pump or by the power pump to fight fire in the bilge.
The valves operating the motor pump are located near the motor pump itself in the control room.

CAUTION
The bilge must be scrupulously kept clean and dry.
Remove any rags or other materials from the bilge, to avoid clogging the intakes and damaging the pumps.

The engine room contains the bilge emergency draining system, which operates with manually activated selector valves, which allow using the sea water pumps of the propulsion engines as draining pumps. In emergency case turn the sealed valves of the bilge intakes and close later on the valves of the engines sea cocks; the pumps suction, driven by the engines is then diverted directly to the bilge.

CAUTION
In case of emergency it is possible to suck the water from the bilge through the sea water pumps of each engine.

These valves are sealed at the Shipyard in neutral position, because their operation should absolutely be wanted and not accidental.
Should it be necessary to use this draining system, the bilge level must be checked continuously, because in case of complete drainage, the engines will not be cooled down.

Two water detection sensors are connected in parallel with a single alarm signal (redundancy).

CAUTION
Be very careful when resetting the valves to sea suction if the bilge is dry, so as not to damage the engine parts.

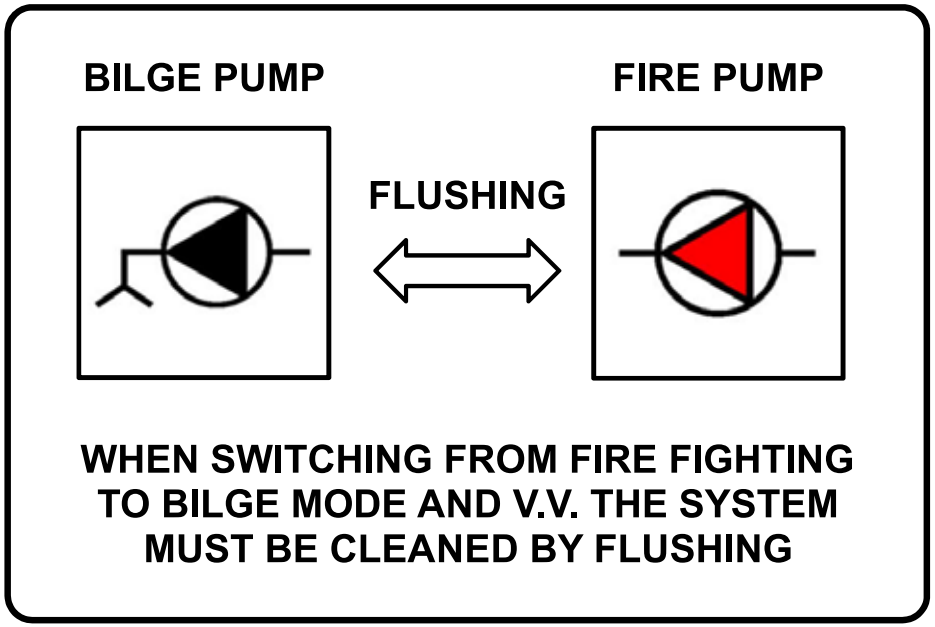
NOTE
The owner must have at least a bailer or bucket on board, to be placed and fixed in case of accidental leakage.

CAUTION
Check the operation of the bilge pump at regular intervals. Clean the sockets and remove any debris.

ENVIRONMENT
To avoid oil pollution, when the bilge pump is used as fire pump, please remember to wash the piping system before operating the by pass valves.

CAUTION

Adequate washing of the bilge pump shall be carried out before operating the by-pass on the fire-fighting system.



CAUTION

Keep the bilge dry to allow a prompt detection of water presence and to reduce the risk of slipping, besides creating a less aggressive environment for the fixtures.

CAUTION

In case of water presence in some compartments of the lower deck, before getting alert, verify if the bilge water is fresh or salted, this will be of fundamental help with the verification of its source.

CAUTION

The bilges must be kept dry and clean.
Remove any rags or other residues from the bilge, to prevent any clogging of the pump intakes, causing serious damage to the pumps and impairing the safety of the yacht.

ENVIRONMENT

Sea discharge of oils and fuels is prohibited.

CAUTION

The combined capacity of the system is not designed to drain the yacht in case of leakages.

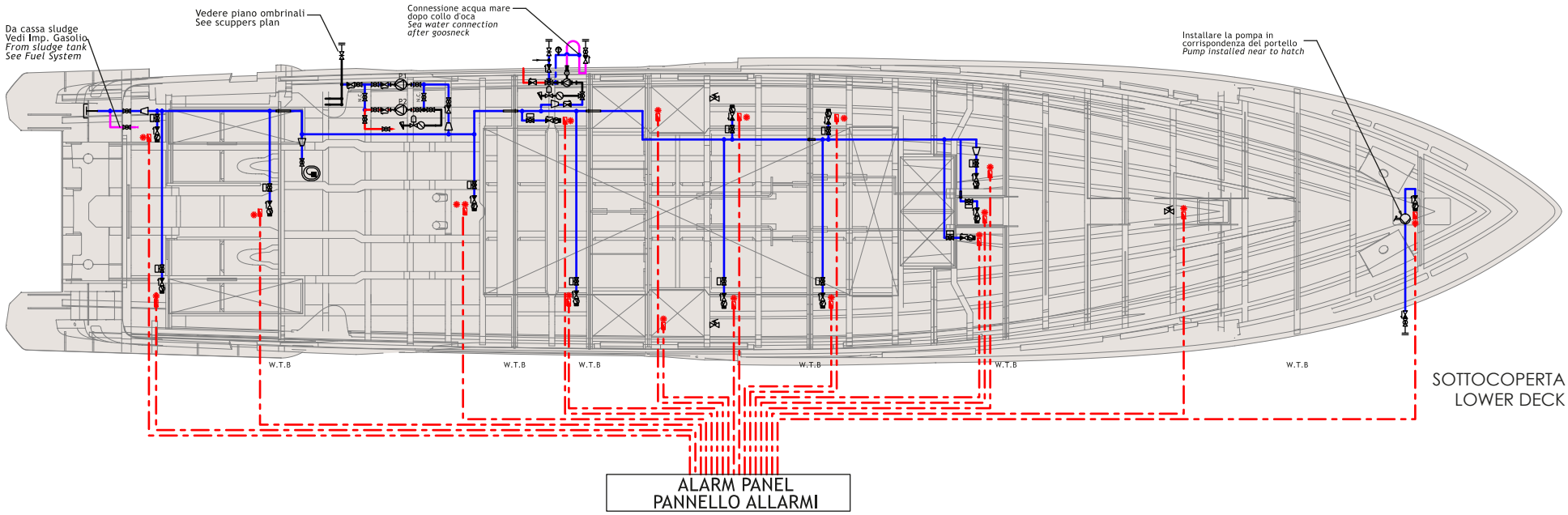
ENVIRONMENT

Possible oil or fuel spilled in the bilge must be collected and stowed. It is forbidden to discharge bilge water mixed with oil or diesel fuel into the sea, because this can cause pollution.
During the maintenance operation in the engine room, it is compulsory to disconnect the magneto-thermal switches of the bilge pump automatic suction system, avoiding in this way accidental spillages of liquids and consequently sea water pollution.

ENVIRONMENT

The bilges in the engine room and control room can only be emptied after visually checking for the absence of oil or fuel in the water.

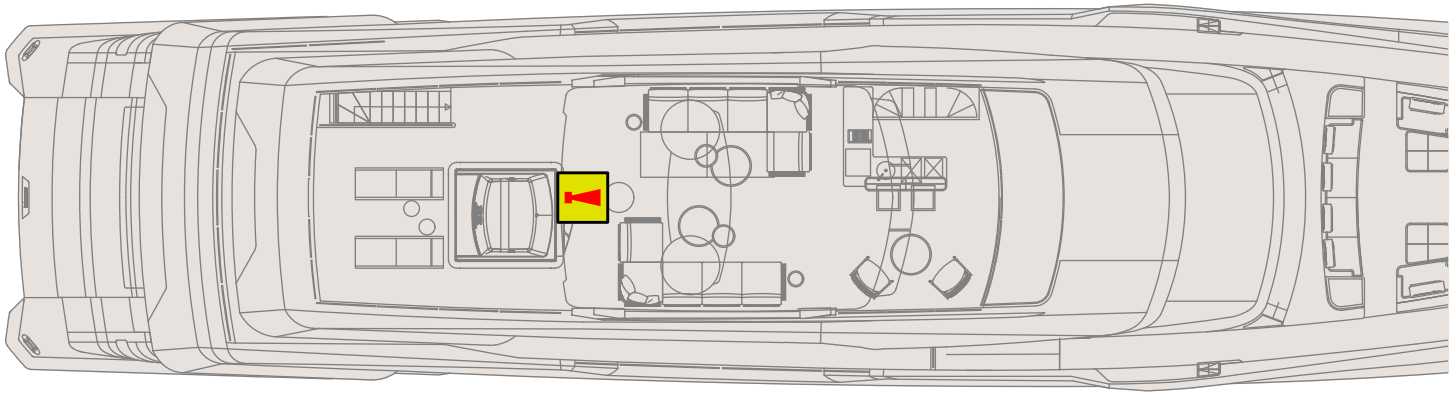
Bilge system diagram:



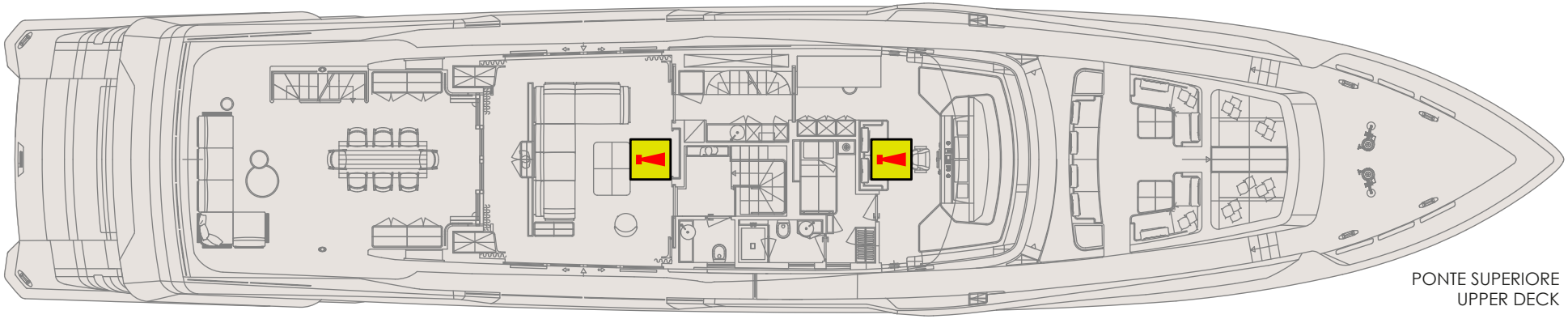
ICONA ICON	DESCRIZIONE DESCRIPTION
	Valvola a sfera Ball valve
	Valvola a 3 vie a sfera 3-way ball valve
	Valvola di non ritorno Non return valve
	Valvola LUG Lug valve
	Valvola drenaggio automatica Self-closing drainage valve
	Flangia MARPOL aspirazione Marpol bilge flange
	Flangia MARPOL aspirazione Marpol bilge flange
	Pompa manuale Hand pump
	Fuori bordo Over board
	Giunto compensatore Flexible joint

ICONA ICON	DESCRIZIONE DESCRIPTION
	Giunto compensatore soffietto Bellow joint
	Presa a mare Sea chest
	Al ponte superiore To upper deck
	Al ponte inferiore To lower deck
	Al ponte inferiore To lower deck
	Manometro Pressure gauge
	Tubo flessibile con succhieruola Flexible hose with suction rose
	Valvola sfera + attuatore Ball valve + actuator
	Aspirazione sentina con valvola bilge suction with valve
	Int. livello a galleggiante Float level switch

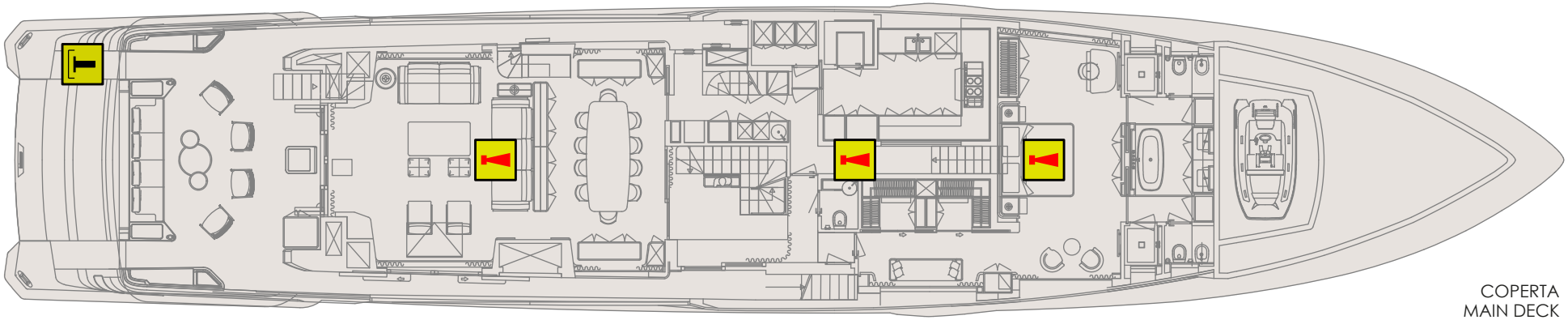
ICONA ICON	DESCRIZIONE DESCRIPTION
	Filtro acqua mare Sea water strainer
	Motopompa emergenza Emergency engine pump
	P1-Pompa sentina P2-Pompa antincendio P1-Main bilge pump P2-Main fire pump
	Tubazione sentina principale Main bilge pipe
	Tubazione sentina secondaria Secondary bilge pipe
	Tubazione antincendio Fire pipe
	Linea cavi elettrici per sentina Electrical line for bilge alarm
	Tubazione scarico gas motopompa Engine pump gas discharge



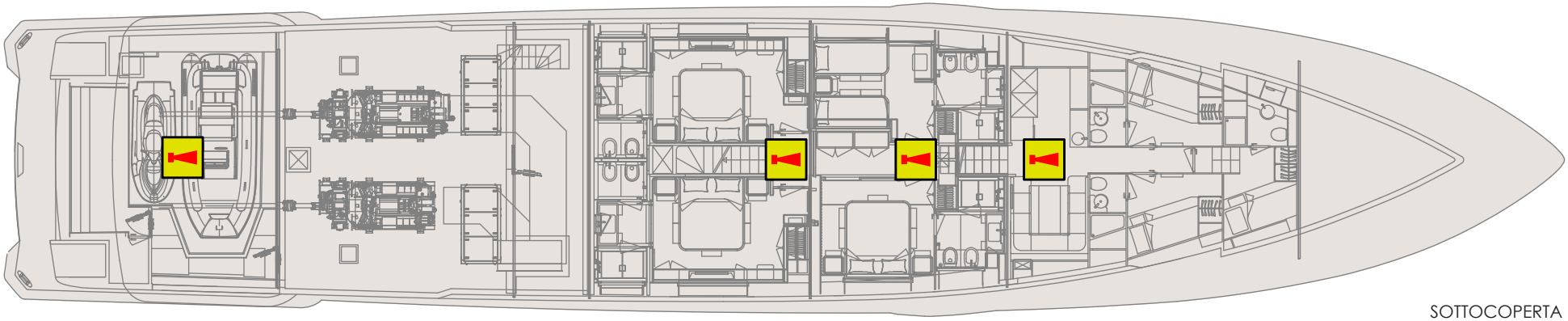
PONTE SOLE
SUN DECK



PONTE SUPERIORE
UPPER DECK



COPERTA
MAIN DECK



SOTTOCOPERTA
LOWER DECK

ICONA ICON	DESCRIZIONE DESCRIPTION
	Collegamento internazionale da banchina International shore connection
	Sirena d'allarme Alarm siren
	Pompa di sentina elettrica principale Main electric bilge pump
	Pompa di sentina/antincendio di emergenza Emergency bilge/fire pump
	Comando a distanza per la pompa di sentina Remote control for bilge pump

5.5.1 Bilge system maintenance

Electric pumps generally do not require routine maintenance, provided that some precautions are taken to prolong their operation.

DANGER

Before any intervention, make sure that the power has been disconnected and that there is no possibility of accidental connections.

Check that the pump shaft moves freely by inserting a screwdriver at the back of the drive shaft.
Fill the pump body with liquid to cause the pump to start. This operation is very important and must be carried out at the first start-up and whenever the pump body remains empty, in order to avoid damaging the pump itself.

Check the direction of rotation and make sure the pump engine works within its performance range and that therefore the absorbed current on the data plate is not exceeded.
These pumps generally do not require routine maintenance, provided that some precautions are taken to prolong their operation.

- The pump must not be allowed to run dry.
- In direct current motors, the brushes must be periodically checked.
- If the yacht needs to remain inactive for a long period of time, it is advisable to empty the pump body and clean it.
- If a bottom valve and suction filter are installed, check them periodically to ensure they work properly and are clean.
- Check that the impeller is never blocked. This would result in serious damage to the electric motor and if this were to happen provide for the descaling of the impeller and the pump body.

5.6 SEA WATER SYSTEM

The sea water systems on board are:
- Air conditioning heat exchanger cooling system
- Engine cooling system
- Generator cooling system
- Fire-fighting system
- Watermaker system
- Propeller shafts seals cooling system
- Cooling gyroscopic stabilisers.
- Zero Speed system cooling

The engine cooling system consists of two circuits, one for the starboard engine and the other for the port one.
Sea water is sucked directly by the engine inner pumps by means of a sea cock equipped with cut-off valve and strainer.
The sucked water, flows partially through the strainers and is then delivered to the heat exchangers of the engines, and discharged overboard by means of gas exhaust. Another part is sent to the gearbox exchanger and then discharged outboard.

The power generators cooling system, consists of two circuits, one for each power generator.
Sea water is sucked directly by the inner pumps of the generators by means of two sea cocks equipped with cut-off valve and strainer. The water drawn by the generators, after passing through the filters, is sent to the heat exchangers of the generators and then discharged overboard, together with the gas discharge through the mufflers and gas/water separators.

The sea water fire-fighting system consists of two electric pumps that draw sea water through a sea water intake equipped with a shut-off valve and filter, located in the engine room, and send it to the connections for the fire hoses.
Usually a pump works as fire-fighting pump, while the other works as bilge pump.

On the yacht there is also a seacock, equipped with a shut-off valve and a filter to feed the emergency motor pump; both the motor pump and its seacock are located in the control room.

In the cooling system for the air-conditioning system, sea water is drawn by two electric pumps through a seacock equipped with a shut-off valve and a filter positioned in the engine room.

The suctioned water is sent to the heat exchanger of the air-conditioning units located in the engine room and then discharged outboard.

The sea water system for the watermaker consists of a sea cock equipped with cut-off valve and strainer, the electric pump of the watermaker sucks sea water. The brine left over after the process is drained overboard.

If present, the gyroscopic stabiliser sea water system consists of a seacock with a shut-off valve and filter. The stabilizer pumps draw sea water to cool the stabilizers. Both the pumps and the filters and the outlets are located in the bilge under the side garage.

WARNING

In case of engine room flooding, it is possible to use the engine cooling system to pump water from the bilge in large quantities as follows:
- Start the engines;
- Close the engine seacocks and by open the bilge suction valves.

The valves activation must absolutely be wanted and not accidental. Should it be necessary to use this draining system, the bilge level must be checked continuously, because in case of complete drainage, the engines will not be cooled down.

CAUTION

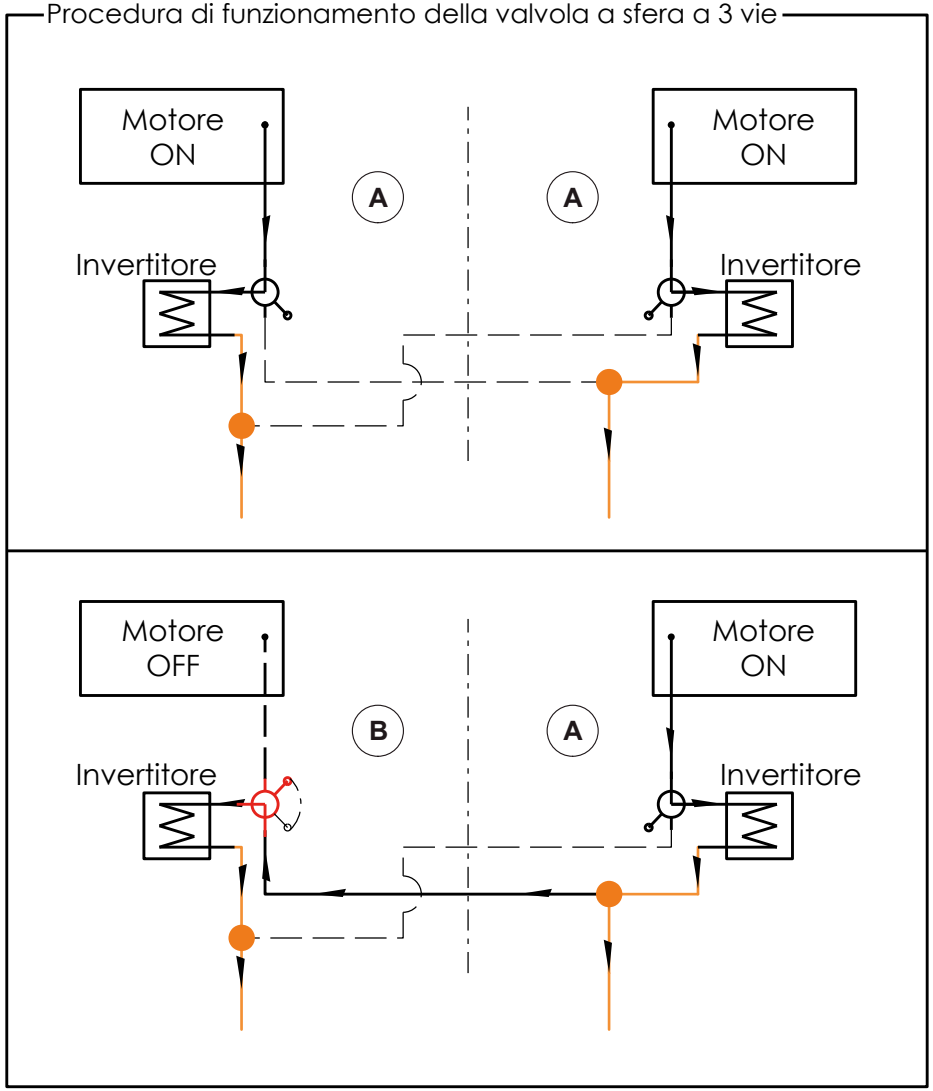
Be very careful when resetting the valves to sea suction if the bilge is dry, so as not to damage the engine parts.

This yacht is equipped with a Trailing Pump on the gearbox module; this system allows navigation with a single engine while safeguarding the mechanical components of the engine switched off. For long distances a "sea water" cooling circuit has been provided with the following modes of use.

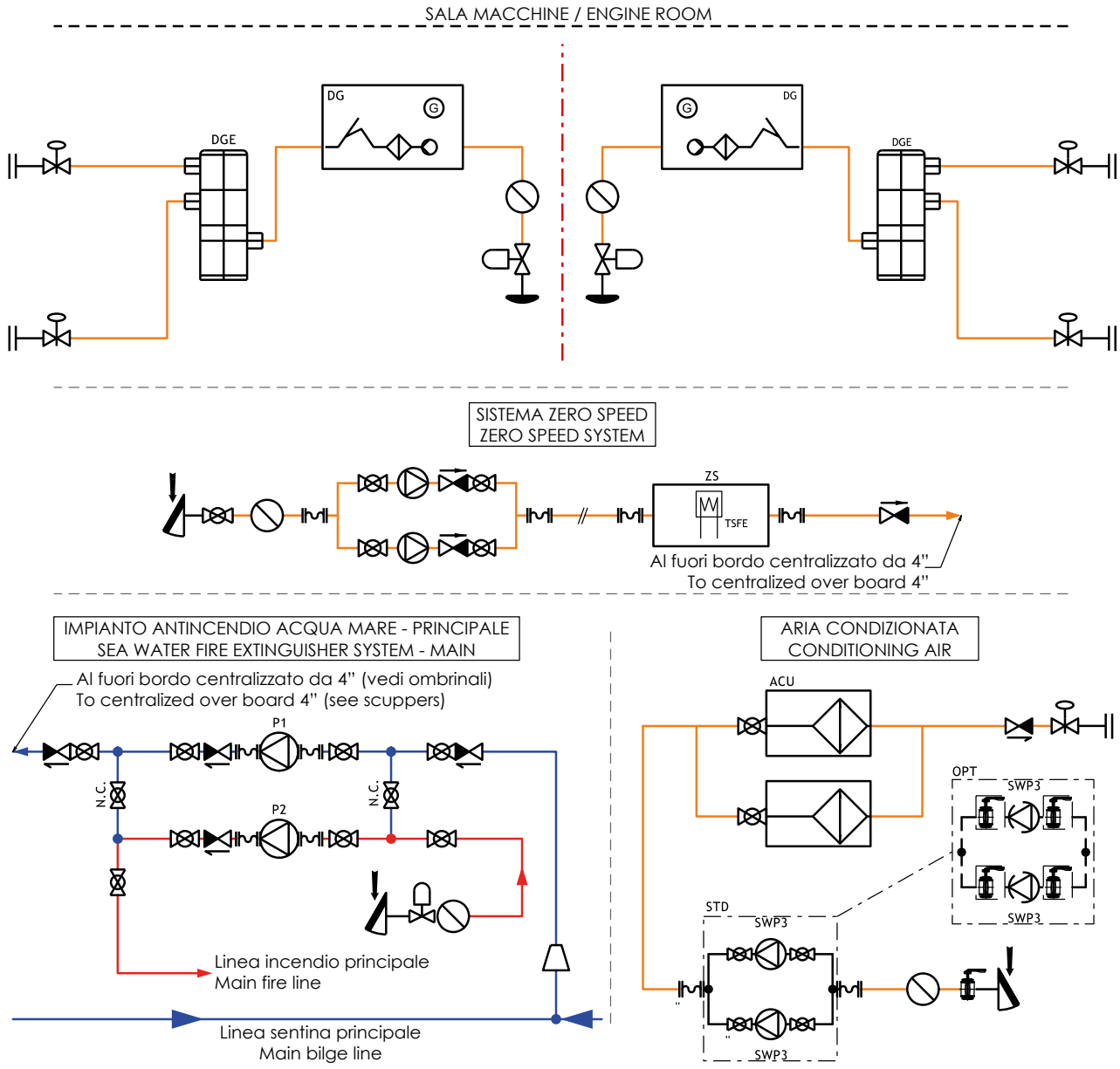
For prolonged navigation with one of the two engines switched off, operate as follows:

- With both engines working, the 3-way valves, positioned between the engine and the inverter, must be kept in configuration "A" (no partialization of the water flow towards the other inverter);
- If one of the two engines shuts down or fails (Engine OFF in the figure), the corresponding valve must be set to position "B" (the inverter now receives part of the cooling water coming from the delivery of the gear in operation).

Procedura di funzionamento della valvola a sfera a 3 vie

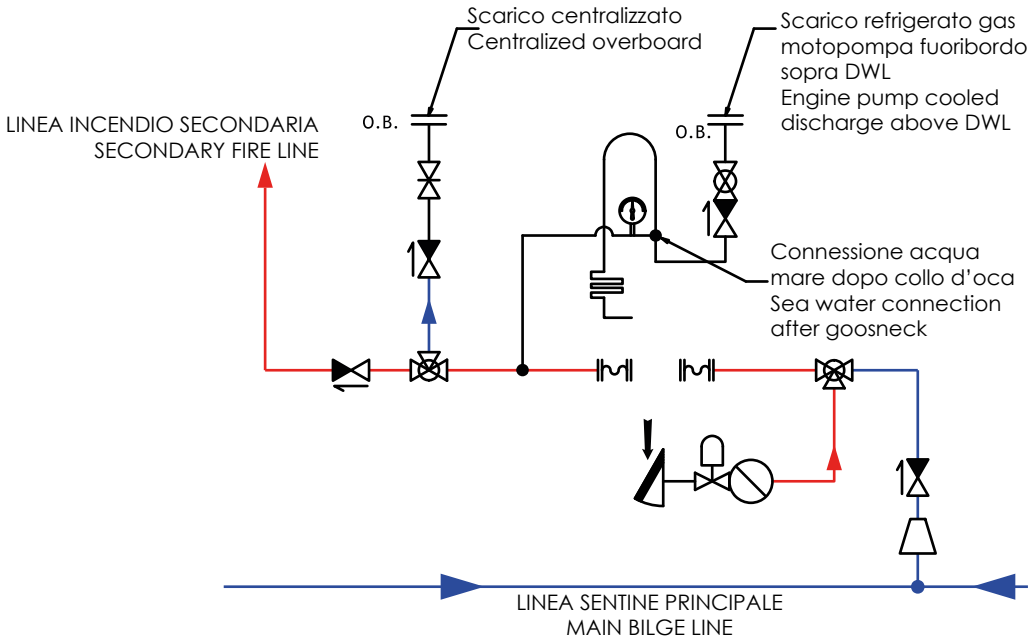


Auxiliary services sea water system diagram:

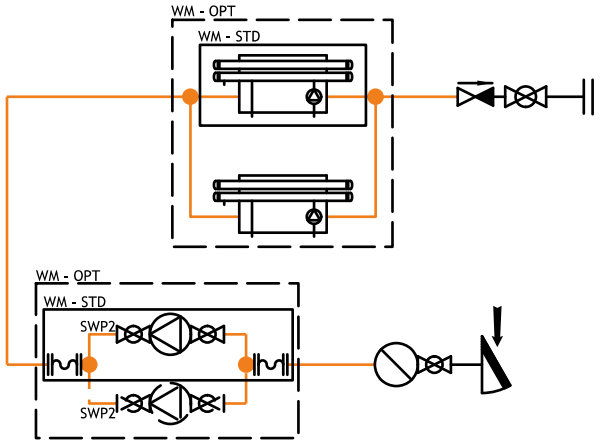


LOCALE IMPIANTI / TECHNICAL AREA

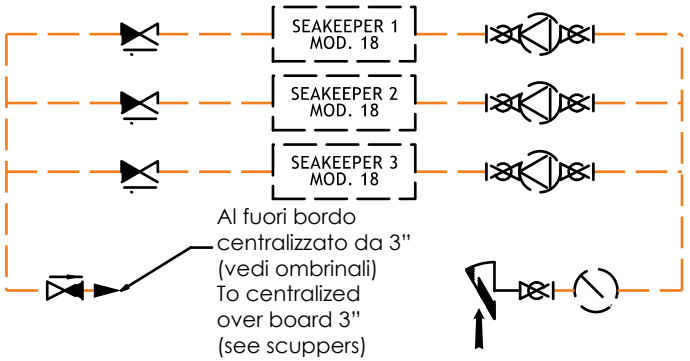
IMPIANTO ANTINCENDIO ACQUA MARE - SECONDARIO
SEA WATER FIRE EXTINGUISHER SYSTEM - SECONDARY



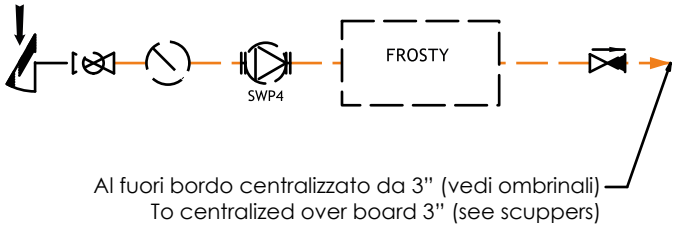
DISSALATORE
WATERMAKER



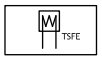
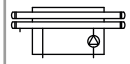
SEAKEEPER (OPTIONAL)



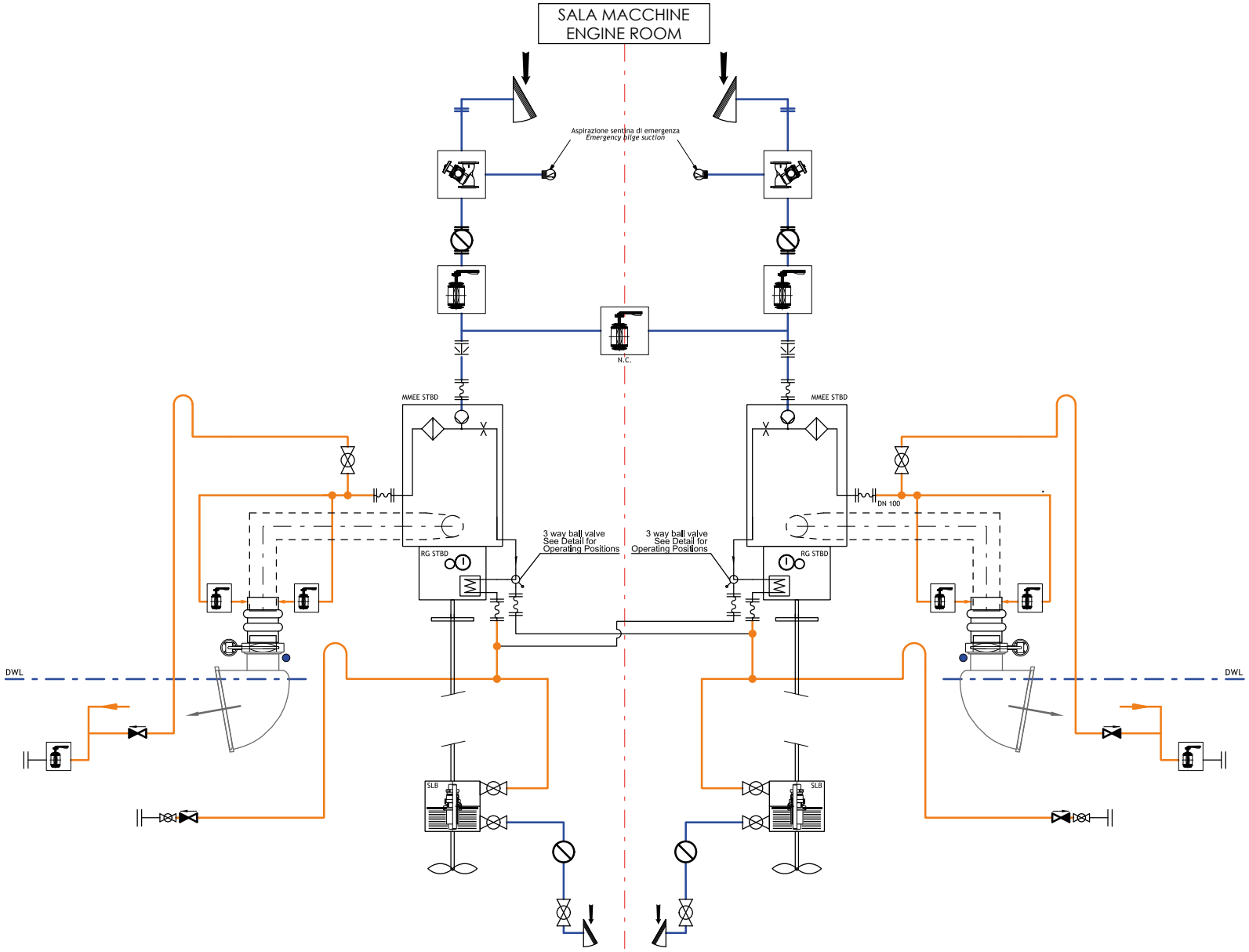
ARIA CONDIZIONATA - FROSTY
CONDITIONING AIR - FROSTY



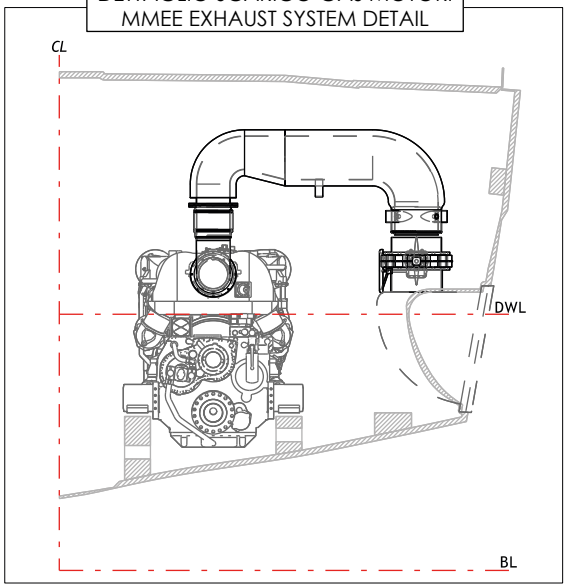
ICONA ICON	DESCRIZIONE DESCRIPTION
	Valvola LUG LUG valve
	Valvola LUG con volantino LUG valve with handwheel
	Valvola antiblocco Anti-block valve
	Valvola a sfera Ball valve
	Valvola di non ritorno non return valve
	Scarico fuori bordo Overboard discharge
	Presa a mare statica Static sea chest
	Presa a mare dinamica Dynamic sea chest
	Giunto compensatore Expansion joint

ICONA ICON	DESCRIZIONE DESCRIPTION
	Generatore Generator
	Scambiatore impianto pinne stabilizzatrici Fins system exchanger
	Chiller aria condizionata Conditioning air chiller
	Dissalatore Watermaker
	Congelatore Frosty
	Filtro acqua mare Sea water filter
	Pompa acqua mare Sea water pump
	Pompa di sentina (P1) / antincendio (P2) Bilge pump (P1) / fire-fighting (P2)
	Motopompa emergenza Emergency motorpump

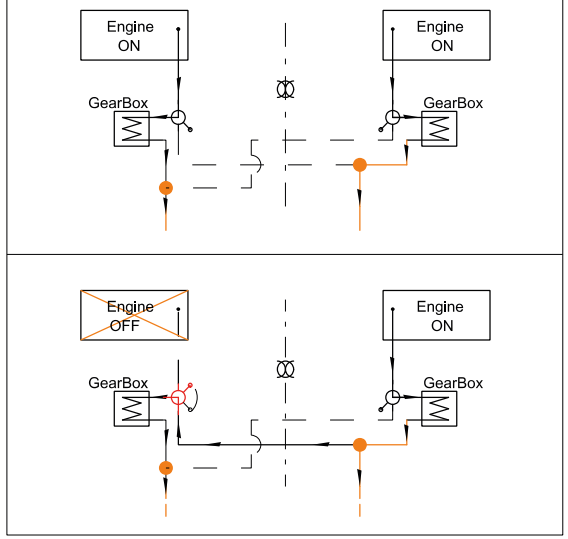
Engine sea water system:



DETTAGLIO SCARICO GAS MOTORI
MMEE EXHAUST SYSTEM DETAIL



PROCEDURA OPERATIVA VALVOLE A SFERA 3 VIE
3 WAY BALL VALVE OPERATING PROCEDURE



ICONA ICON	DESCRIZIONE DESCRIPTION
	Valvola a sfera Ball valve
	Presa a mare dinamica Dynamic sea chest
	Lente calibrata Calibrated glass
	Giunto compensatore Expansion joint
	Soffietto scarico motore MMEE expanding exhaust joint
	Filtro acqua mare Sea water chest
	Scambiatore acqua / olio Water / oil exchanger
	Scambiatore acqua / acqua Water / water exchanger
	Pompa acqua mare Sea water pump
	Sensore di temperatura scarico Exhaust temperature sensor
	Riduzione Reduction
	Scarico fuori bordo Overboard discharge
	Linea aspirazione Suction pipe line
	Linea di scarico Discharge pipe line

ICONA ICON	DESCRIZIONE DESCRIPTION
	Valvola antiblocco doppia mandata Anti-block valve double throw
	Valvola LUG LUG valve
	Tenuta asse Shaft seal

ICONA ICON	DESCRIZIONE DESCRIPTION
	Valvola LUG con volantino LUG valve with hand wheel
	Lupa Emergency bilge suction
	Valvola di non ritorno Non return valve

5.6.1 Seacock and strainer maintenance

Clean the sea cock strainers according to the schedule and to the pollution condition of the sucked waters (seaweeds, mucilages, etc.).

Check and clean sea cock valves and strainers:

- Check for barnacles or corrosion on the control levers of the cut-off valves of the strainer to be checked.
- Clean the control levers of the valves with a brush, lubricate and protect with proper products.
- Move the levers repeatedly.
- Close the cut-off valve upstream the strainer.
- Unscrew screws of strainer cover.
- Remove the filter element, clean it with a brush and rinse it in water (replace as necessary).
- Clean the strainer housing.
- Check and, if necessary, replace the gasket of the strainer cover.
- Fill the strainer with water to avoid the pumps running dry or that the system does not prime.
- Reposition the strainer, the cover and tighten the nuts.
- Reopen the cut-off valve and check whether the strainer cover is leaking.

CAUTION

Before carrying out the cleaning of the sea cock strainers, check that the uses supplied with sea water are switched off and not in use.

CAUTION

Isolate the strainer to be cleaned, cutting off relevant valves upstream and downstream.

CAUTION

The air conditioning system is also equipped with a draining valve, located under the water line; perform the same maintenance as for the sea cock valve.

WARNING

During navigation, regularly check the cleanliness of the sea water strainer baskets. If the yacht is crossing a dirty sea area, check the condition of the strainers and proceed with their cleaning. Taking suitable precautions is very important to prevent damage to mechanical parts (engines, generators, etc.), discharge systems and to not jeopardize the safety of the yacht.

DANGER

The lack of care while cleaning each sea intake strainer can cause serious damage to the on-board devices and, in some cases such as fire, it may have extremely serious consequences. Check before undertaking the navigation and at regular intervals during navigation, the condition of the sea cock strainers of the various devices through the transparent covers.

5.7 SEA WATER FIRE EXTINGUISHING SYSTEM

The sea water fire-fighting system consists of an electric pump which sucks sea water through a sea intake equipped with cut-off valve and strainer and sends it to the connections for the fire-fighting hoses located as follows:

- 1 on the starboard walk-around of the main deck;
- 1 inside the unit next to the service stairs in the main deck;
- 1 in the control room;
- 1 inside the service cabinet of the corridor with the VIP and guest cabins;
- 1 in the fore mooring area;
- 1 in the crew quarters dining room;
- 1 in the stern port stanchion on the upper deck;
- 1 on the sun deck on the port side.

In addition to the fire hoses, the system also feeds the sprinklers designed to protect the following:

- Stern side garage;
- Bow garage.

The pump can be activated by means of a button located near each fire hose connection. The pump ensures that the water jet from any hydrant has enough pressure to ensure it can reach an area about 12 metres away. The fire hoses are equipped with a three-position nozzle and a UNI 45 hose. To operate the electric pump, it is necessary to properly sort the valves located on the pump itself, bringing them to the fire suction and fire delivery position.
In case the fire-fighting pump should fail, it is possible to use the bilge pump or the bilge fire fighting motor pump, located in the bilge of the auxiliary control system, which sucks sea water by means of a sea cock equipped with cut-off valve and strainer, modifying the cut-off valves' direction to the desired operating mode.

CAUTION
Chain washing valves must be kept normally closed.
They should only be kept open during the chain washing operation.

A push-button panel for opening the chain-washing valves is located in the left locker of the bow anchorage area.

DANGER
Do not use water to fight fires with electric circuits powered, as this could cause electric shocks or short circuits, feeding the fire even further.

CAUTION
Before operating the pump, make sure that the valves are opened correctly.

CAUTION
Before carrying out the seacock strainer cleaning check that the supplied uses are switched off and not in use.

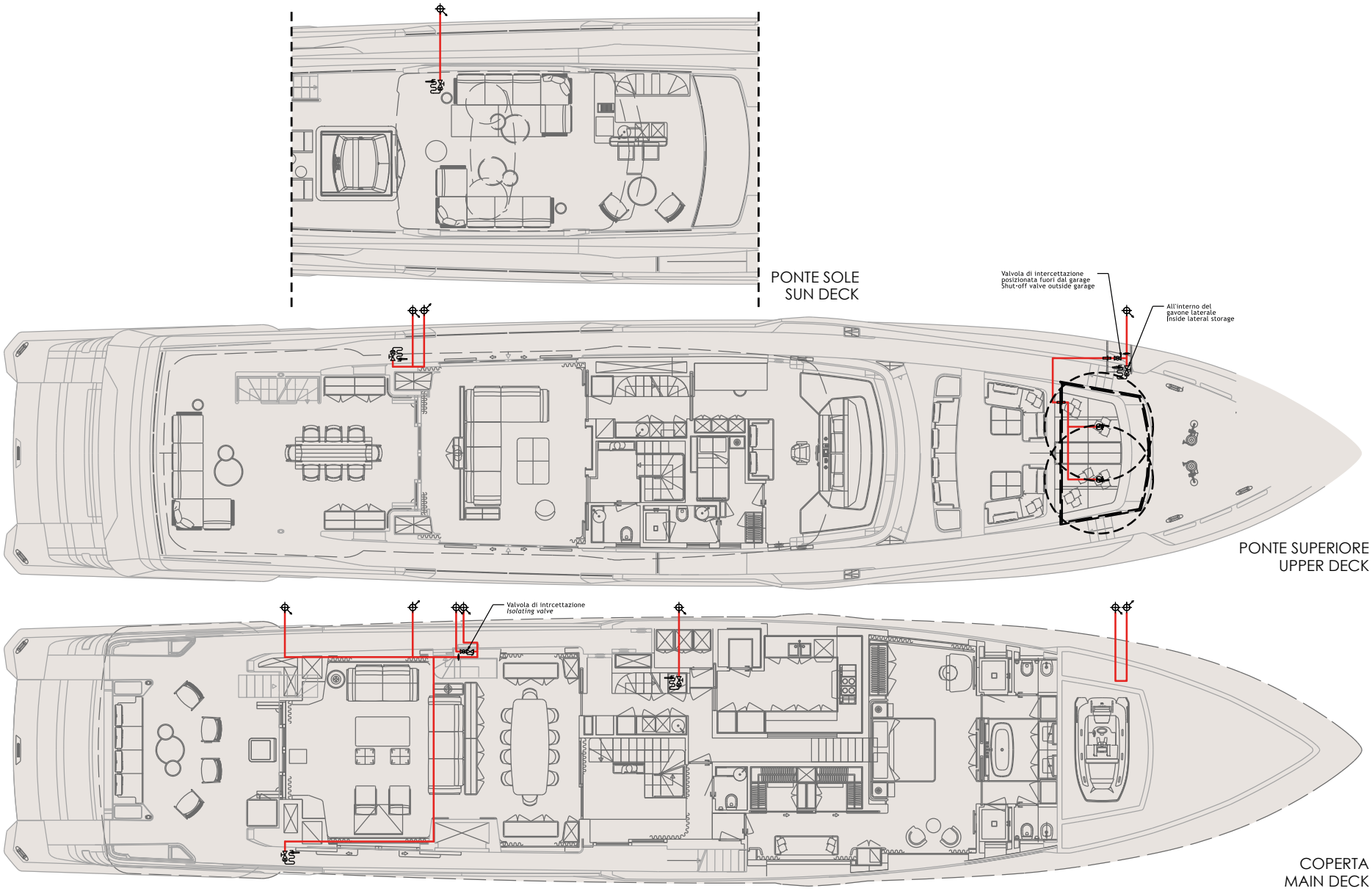
NOTE

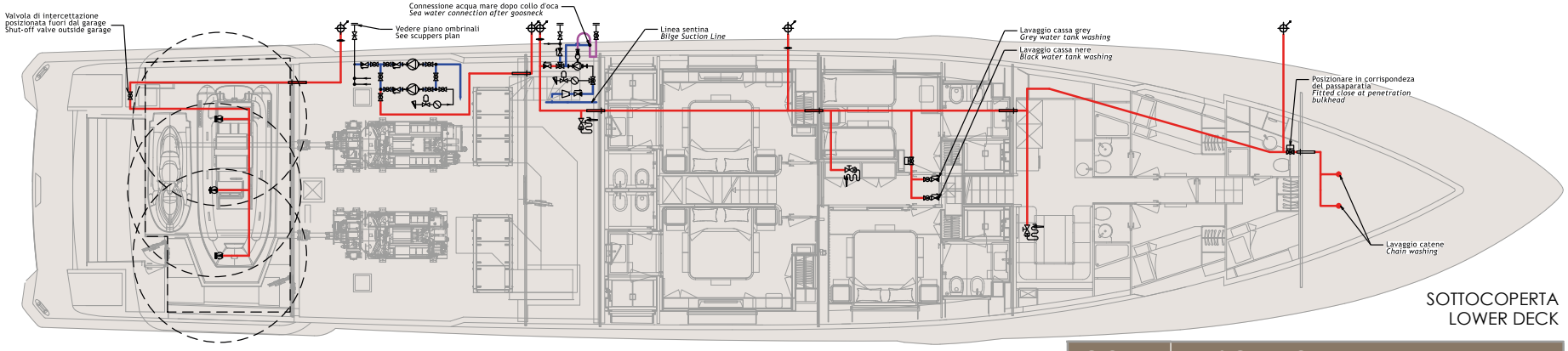
For further information and for the layout of the systems, please refer to the specific manuals of the different devices installed on board and the technical diagrams provided separately by the Shipyard.

ENVIRONMENT

To avoid oil pollution, when the bilge pump is used as fire pump, please remember to wash the piping system before operating the by pass valves.

Sea water fire-extinguishing system diagram:





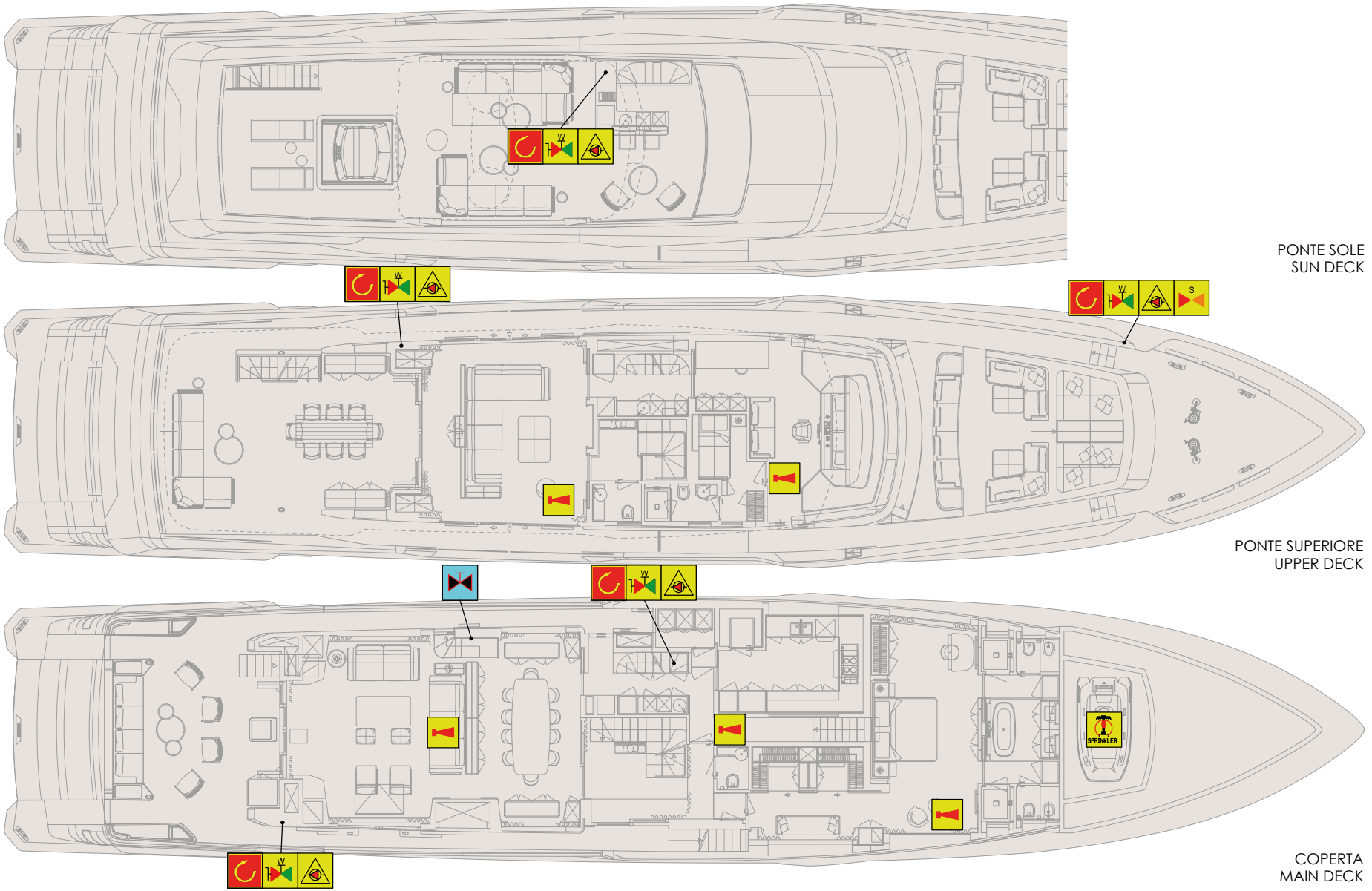
SOTTOCOPERTA
LOWER DECK

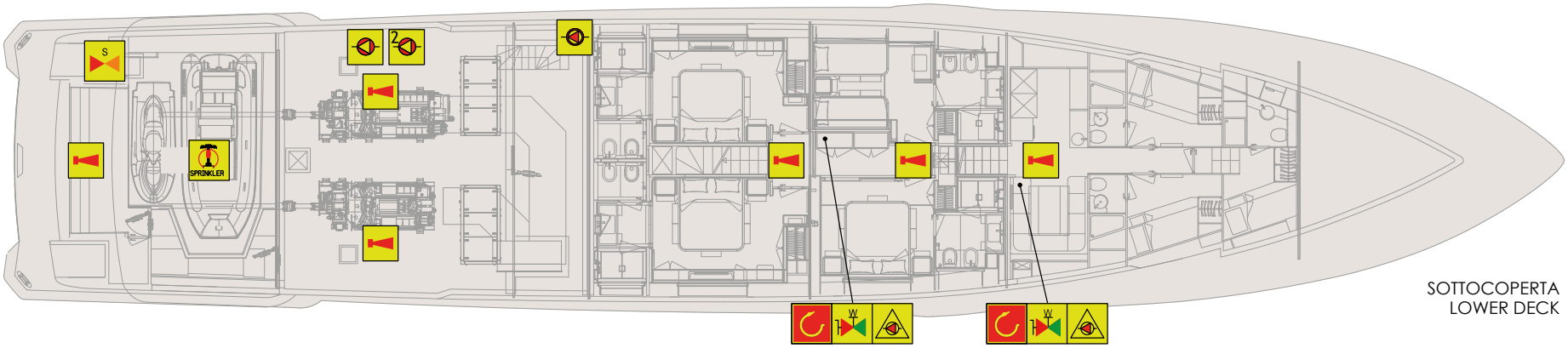
ICONA ICON	DESCRIZIONE DESCRIPTION
	Valvola a sfera Ball valve
	Valvola a sfera a 3 vie 3-way ball valve
	Valvola di non ritorno Non return valve
	Valvola LUG LUG valve
	Valvola antiblocco Anti-block valve
	Sprinkler Sprinkler
	Passaparatia stagno Watertight bulkhead penetration
	Fupri bordo Overboard

ICONA ICON	DESCRIZIONE DESCRIPTION
	Giunto compensatore Flexible joint
	Giunto a soffietto Bellow joint
	Presa a mare Sea chest
	Al ponte superiore To upper deck
	Al ponte inferiore To lower deck
	Riduzione Riduction
	Filtro acqua mare Sea water strainer
	Motopompa emergenza Emetgency engine pump

ICONA ICON	DESCRIZIONE DESCRIPTION
	Pompa sentina / antincendio Main bulge/ fire pump
	Valvola antincendio Fire fighting valve
	Manichetta antincendio Fire fighting hose
	Elettrovalvola Solenoid valve
	Passaggio a ponte stagno Watertight deck penetration
	Tubazione sentina principale Main bilge pipe
	Tubazione sentina secondaria Secondary bilge pipe
	Tubazione antincendio Fire pipe
	Scarico gas motopompa Engine pump gas discharge

Positioning diagram of sea water fire-fighting equipment:





SOTTOCOPERTA
LOWER DECK

ICONA ICON	DESCRIZIONE DESCRIPTION
	Idrante completo di tubo e ugello da 12 m Fire hydrant complete of 12m hose and nozzle
	Sirena d'allarme Alarm siren
	Valvola di isolamento incendio principale tubazione / tubazione di emergenza Isolating valve main fire pipeline / emergency pipeline
	Pompa antincendio elettrica principale Main electric fire pump

ICONA ICON	DESCRIZIONE DESCRIPTION
	Pompa di emergenza di sentina / antincendio (diesel) Emergency bilge / fire pump (diesel)
	Controllo remoto per pompe antincendio Remote control for fire pumps
	Spazio protetto da sprinkler Space protected by sprinkler
	Valvola sezionamento sprinkler Sprinkler section valve

CUSTOM LINE 140’

6

Electric system

6.1 GENERAL DESCRIPTION OF THE ELECTRICAL SYSTEM

The electrical system on board consists of three lines at 400 / 230 V (50 Hz) and 24 V dc, which feed the utilities and 120V that supplies the sockets in the guest rooms.
It comprises the following main elements:

- Port and stbd generators (80kW);
- Plug for 125 Ah 3-pole shore socket + T 400 VAC 50 Hz;
- Frequency converter (with 50Hz output)
- General lighting system (230 V);
- Emergency Lighting System (24 V);
- 24 V batteries for engine starting (n ° 2) with its charger;
- 24 V batteries for generators starter (n ° 2) with its charger;
- 24 V emergency batteries with its charger;
- 24 V power services batteries with its charger;
- 24 V charger battery for radio batteries;
- Parallel connection between the starter battery;
- Cathodic protection with sacrificial anodes;
- Battery switches.
- Garage extractor inverter.

WARNING
If there is the necessity of having to replace a fuse, proceed to its replacement with a new one having the same characteristics in order to avoid damage to the load board.

CAUTION
If your are compelled to use the "battery parallel connection", turn off all electronic devices, so as not to jeopardize their correct operation.

DANGER
The system is similar to a domestic system in terms of features and risks and, if "wrongly" used, mishandled and neglected, it statistically represents one of the most frequent reasons for fire on board.

DANGER
Beware of electric shock hazard! Turn the power off before removing the cover and servicing any electrical equipment internal component.

CAUTION
Disconnect the shore power supply connections when the system is not in use.

CAUTION
All systems (included those operating at low voltage), if wrongly handled or overloaded, can originate short-circuits and heavy overheating, with consequent danger of fire spreading.

CAUTION
Do not modify the electric systems or relevant drawings. The installation, the modifications or the maintenance must be carried out only by a skilled naval electrician. Inspect the system at least once a year.

The electrical system installed on board has been designed and built in compliance with current standards, based on the following criteria:

- All wiring, joints and line-feed protection devices such as magneto-thermal switches, circuit breakers and fuses have been collected and grouped both within and on the front panels of the various onboard electrical panels.
- All electrical lines are oversized, ducted and/or inspectable and implemented with flame-retardant cables laid inside special self-extinguishing conduit. All the aforesaid lines are connected with special spring-type terminal blocks, the latter positioned inside the main electrical panel in the control room and in the various electrical sub-panels.
- The system is highly fragmented into sub-circuits and protected with magneto-thermal switches and fuses for each single load or homogeneous load groups in order to simplify the tracing of possible faults which, for any line, can only occur at the load and the electrical panel.

The protection of the single electric system sections is performed by automatic magneto-thermal breakers of different amperage and size, according to the absorption of the various services to be protected and by the size of cables used for their supply.

All metallic wet pieces are interlocked with equipotential connections and linked on sacrificial anodes installed on the underwater quick-work.

CAUTION

Before undertaking any navigation, check that the batteries are in good condition and that they supply the correct nominal current.

DANGER

It is normal for the converter to generate and emit a large amount of heat.
Do not surround the converter with stowage material and keep it clear of obstructions to ensure that it always has adequate ventilation. Do not stow flammable material near the converter.

DANGER

To lower the of electrocution or fire hazard:

- Turn off switch for connection to shore supply of the yacht, before connecting or disconnecting the shore power supply cable;
- Connect the shore power supply cable to the intake socket of the yacht, before connecting the shore power supply source;
- Disconnect the shore power supply cable first from shore source supply (shore columns);
- Firmly fasten the lid of shore power supply socket.

WARNING

NEVER:

- Work on the electric system while under voltage;
- Change an electrical system on the yacht or pertinent drawings: the installation, changes and maintenance must be performed only by a qualified electrician;
- Alter or modify the intensity of rated current of protections against overcurrent;
- Install or replace electric equipment or devices with components exceeding the rated current intensity of the circuit;
- Leave the yacht unattended with the electrical system powered on, except for the bilge pump, fire protection and alarm circuits.

CAUTION

Remember to periodically check the battery status.
It also does not obstruct the vents.

CAUTION

Never reactivate magneto-thermal switches and circuit breakers forcibly, prior to location of the causes for the current cut-out.

CAUTION

Do not modify connectors of shore power supply cable, use only plug compatible connectors.

CAUTION

Refrain from performing any modification or intervention on the system and on the panel and take advantage of experienced Companies and skilled staff.
Avoid particularly derivations on electric lines and splices of uses not provided for on the same panel. Finally, if uses have to be connected to the available switches, check that their amperage is suitable for the device installed.

CAUTION

Monitor the voltage of the engine and user batteries. During the charging phase 29.1 V can be reached, this is a temporary value, well tolerated, both by the batteries and by the battery charger. This value has to be monitored and if this situation lasts for too long, the magneto-thermal switches of the battery chargers must be disconnected.

CAUTION

Always remember to disconnect all batteries, except for the emergency batteries, before leaving the yacht.

CAUTION

CUSTOM LINE suggests to examine very carefully the whole documentation delivered by the manufacturers of the various components; and for any problem relevant to maintenance, to contact directly CUSTOM LINE after sales & service department.

CAUTION

Always keep batteries charged, also before leaving the ship for a long period, because the batteries discharge up to low level and following they can get irreparably damaged.

NOTE

For a detailed description refer to the electric installation manual.

WARNING

Before carrying out the switching over of the AC sources (generator/shore), it is advisable to disconnect all AC uses currently operating, to prevent damaging the electronic boards of the relevant devices.

DANGER

Electrocution hazard! Turn the power off before removing the cover and servicing any electrical equipment internal component.

DANGER

During the periods of yacht's lay-up for maintenance (out of water), if the shore electric socket is used to supply the AC on-board electric system, always make sure that the yacht's grounding system is connected to the grounding system of the shore column to which you are connected; do this with the aid of experienced personnel.

WARNING

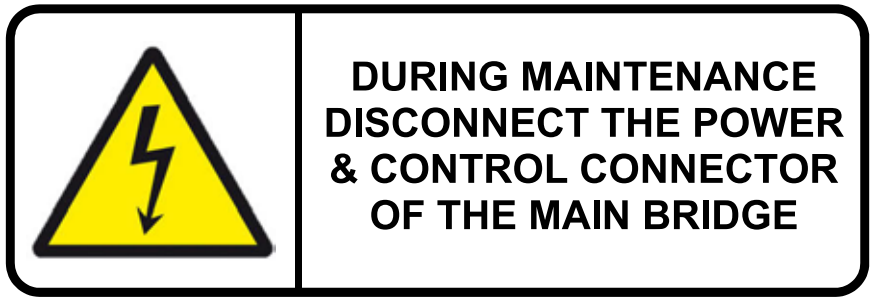
Before stopping the power generators, disconnect the various on-board uses supplied by them by following the correct procedures for switching off; stopping the power generators under load can irreparably damage the electronic control units of the various uses, beyond having a negative influence on the generators' operation. In any case, refer to the manual of each power generator to obtain detailed information about the procedures for switching it on and off.

CAUTION

The on-board lights (except for the ones in the shower area) are supplied with 230 V. Avoid touching them. In case it is necessary to replace the bulb, make sure that the relevant supply switches located on the electrical panel are set to OFF.

CAUTION

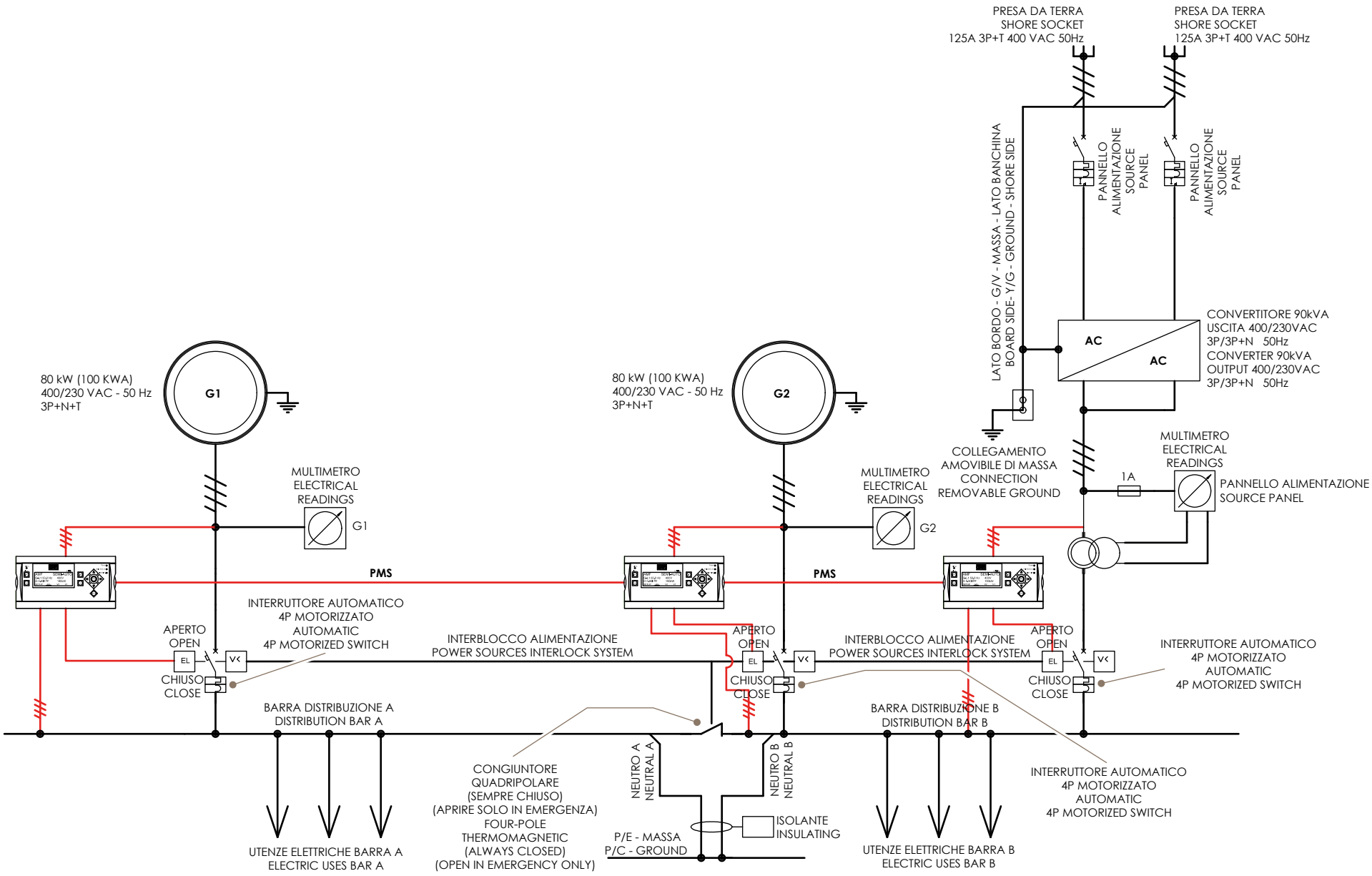
Any remote control to start and stop the engine control devices needs to be able to be disabled in case of maintenance of the engine starter panel in the engine room.



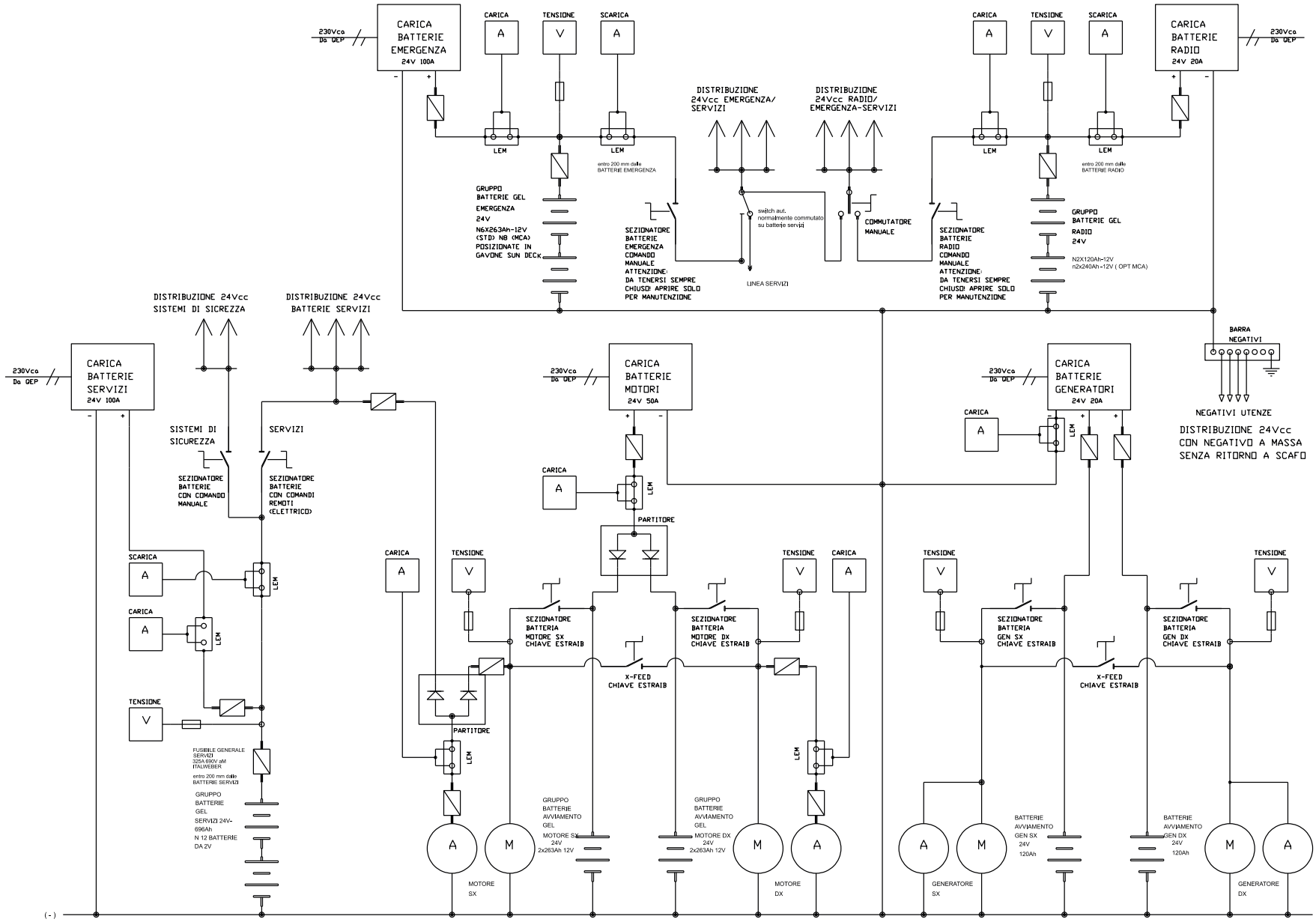
DANGER

The on-board converter is connected in such a way as to provide a continuous galvanic connection between the grounding conductors from the shore and the on-board grounding.
During the periods of yacht's lay-up for maintenance, if the shore electric socket is used to supply the AC on board electric system, make sure to connect the yacht grounding to the shore column grounding to which you are linked, taking advantage of experienced personnel.

Alternating current distribution diagram:



Direct current distribution diagram:



6.1.1 Maintenance of the electric system

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Equipment and circuits	Cleaning and check	At least once every six months, have the various connections of electric boards, panels and boxes checked by experienced personnel. Make sure that ground connections of electric equipment and electrical panels are tight and not oxidized. Have the absorption of the different electric motors periodically checked by skilled personnel. When cleaning the bottom hull, carefully clean the electronic instrument ground static discharger and the porous plate connected the power generator grounding. Moreover, check the condition of the protection anodes and if necessary, replace them. During the lay-up period, do not apply any antifouling on the ground static dischargers.

MAINTENANCE

At least once a week check the operation of all electrical panels.
At least once every six months:

- Check the possible presence of damaged cables;
- Protect the various contacts.

DANGER

Do not modify the electric systems or relevant drawings. The installation, the modifications or the maintenance must be carried out only by a skilled naval electrician. Inspect the system at least once a year.

DANGER

Before carrying out any intervention on the electric system, disconnect all circuits (shore, generators and inverter):

- Disconnect the shore sockets;
- Set to off the magneto-thermal switch of generators;
- Set to off the magneto-thermal switches at inverter output and turn off the inverter (off button on the front).

CAUTION

It is forbidden to use pressurized water on light appliances installed outside.

6.2 ELECTRICAL PANELS

CAUTION
Before removing the front panel for maintenance, stop the generators, disconnect the shore connections and the inverter.

NOTE
For a detailed description refer to the electric installation manual.

MAIN ELECTRICAL PANEL:
The electrical system is controlled from the panel located in the control room.
The following main sections have been identified, in order to make the descriptions easier:

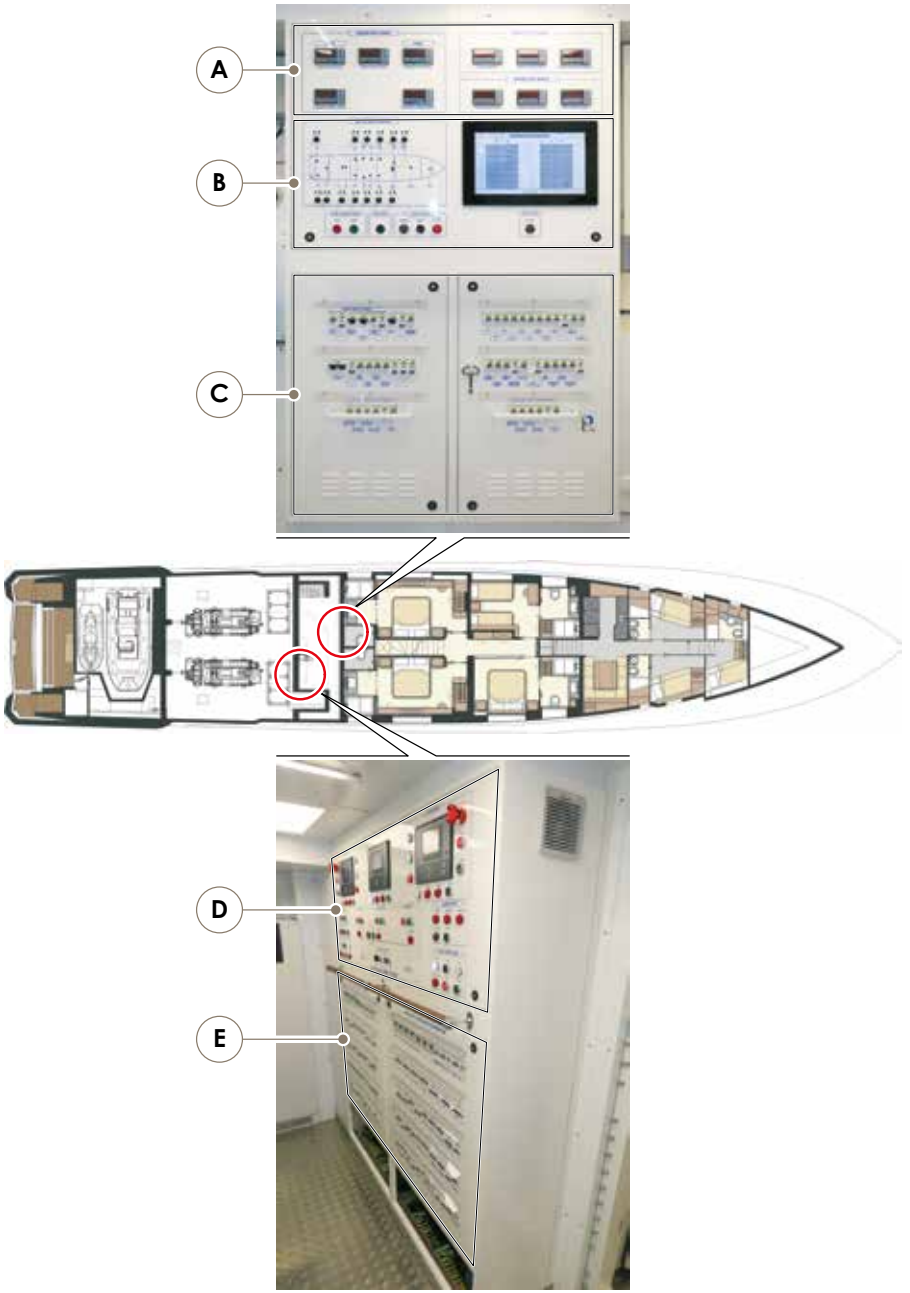
A. Battery state-of-charge gauges

B. Bilge system control buttons and selectors

C. Magneto-thermal circuit breakers to protect 24V on-board uses and safety utilities and gangway battery breaker.

D. Shoreside or generator power supply meters and selectors and black and grey water system control buttons and selectors

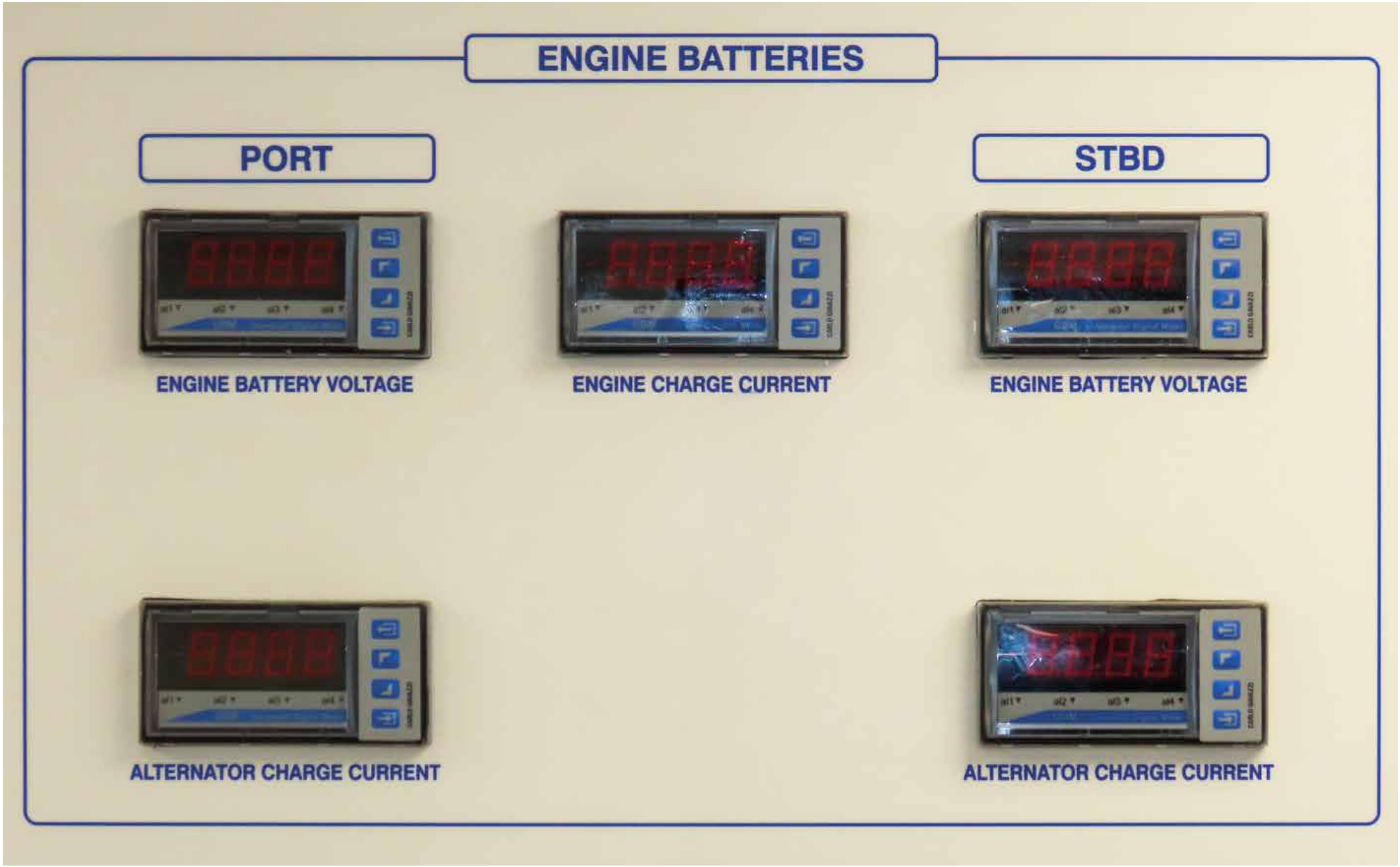
E. Magneto-thermal circuit breakers to protect 400/230V on-board uses.

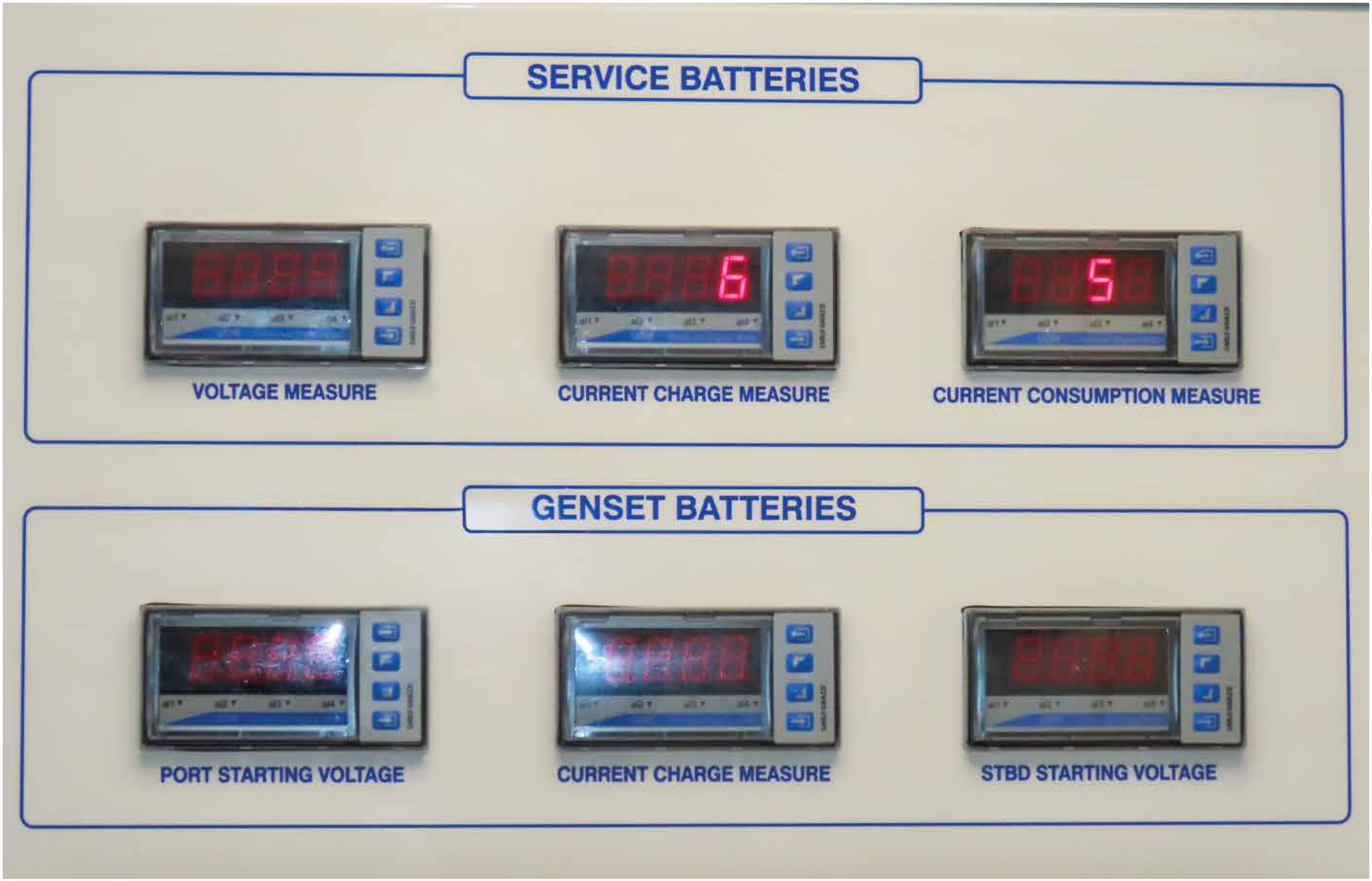


CAUTION

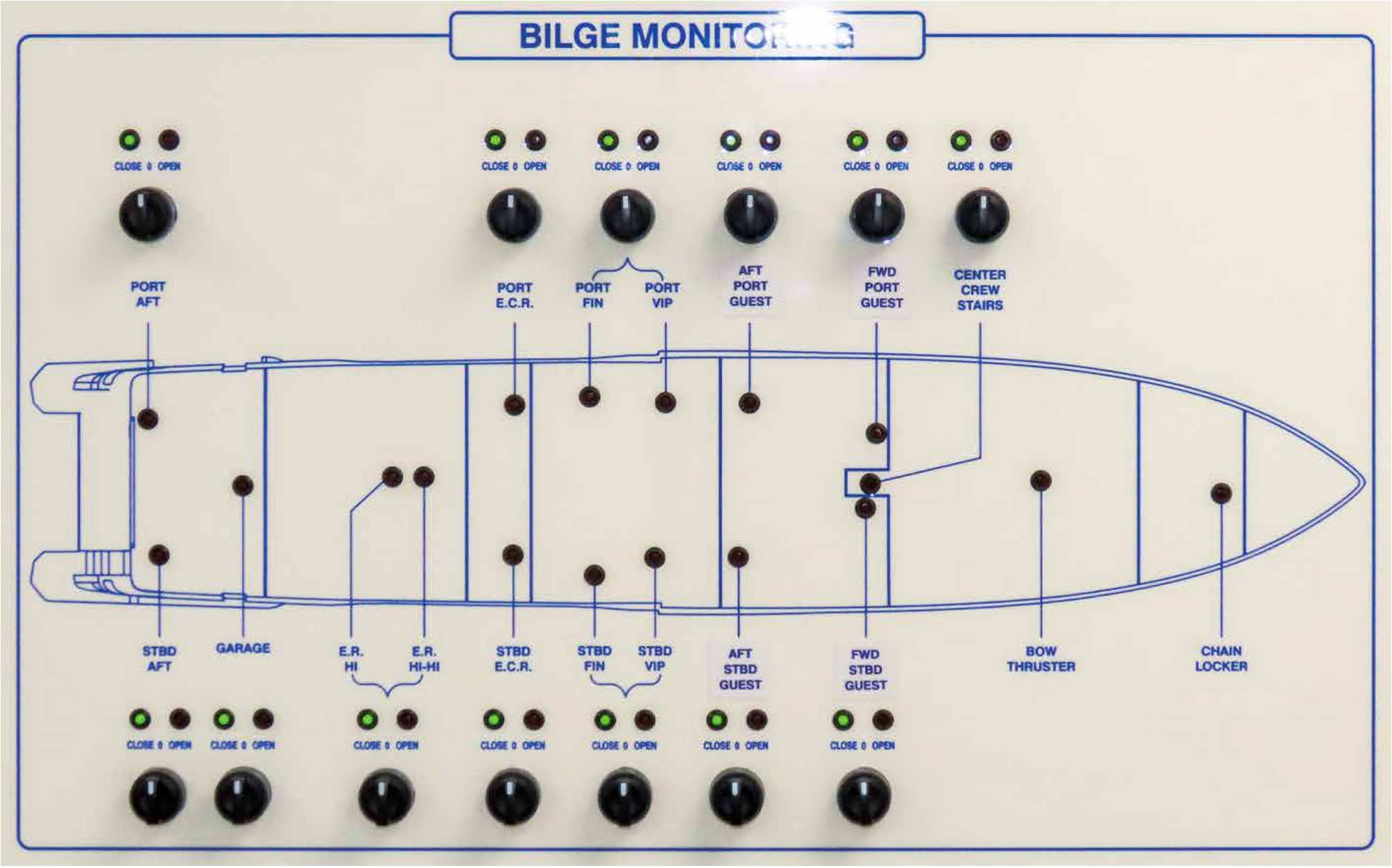
Always keep the safety systems and gangway powered. Operate the battery breaker switch for safety systems and gangways only in the event of a short circuit or an emergency.

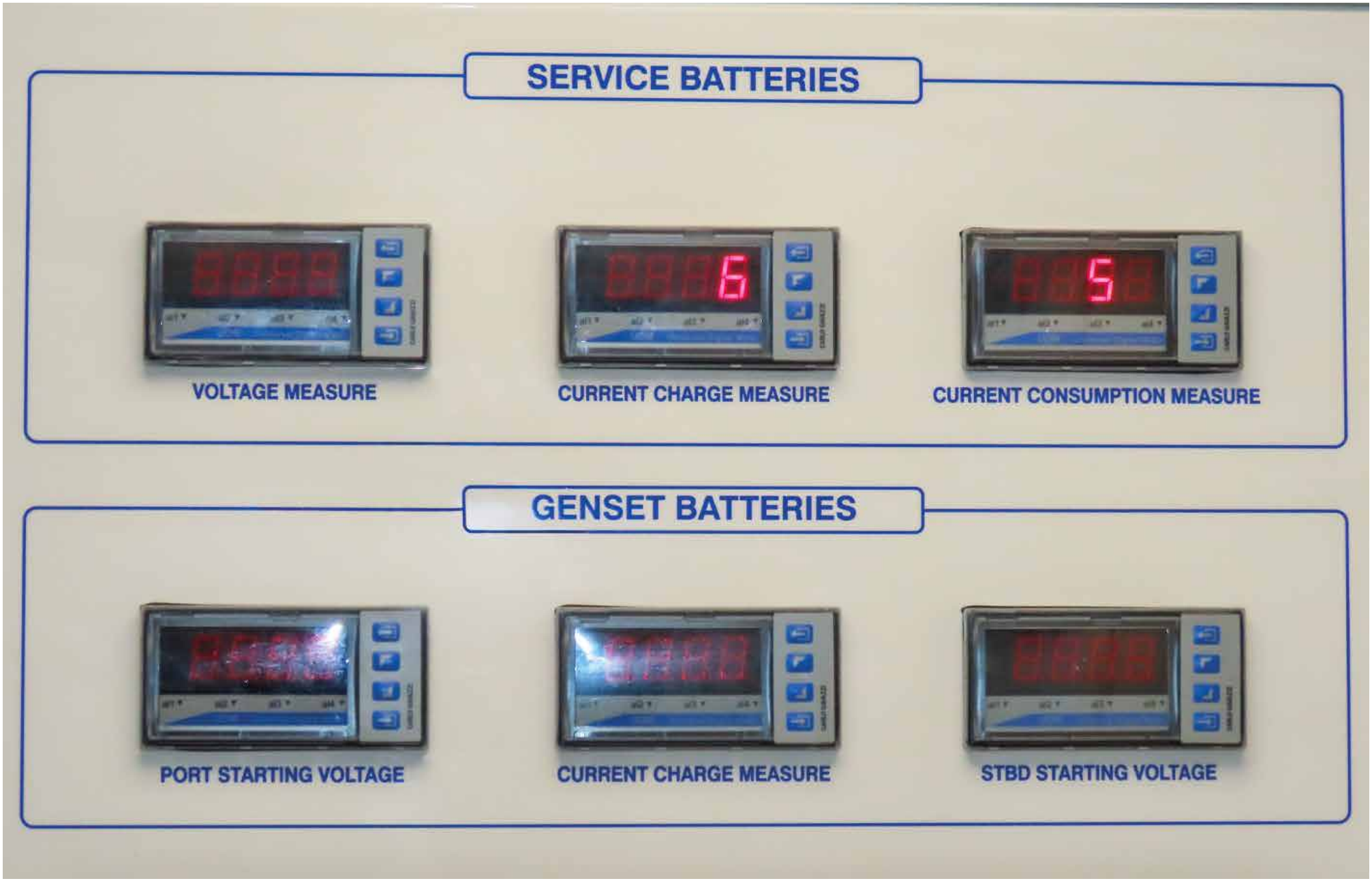
A. Battery state-of-charge gauges



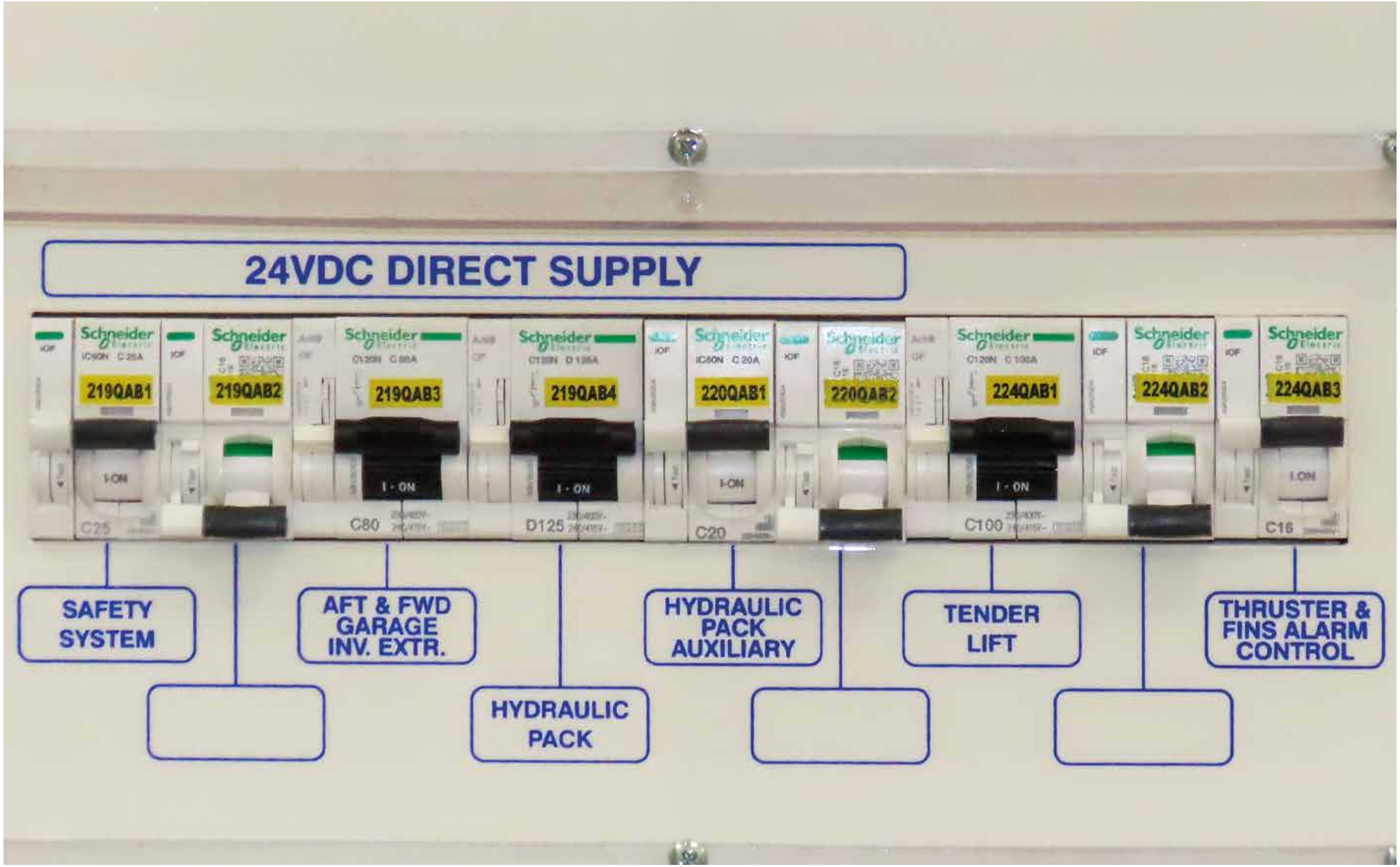

SERVICE BATTERIES
VOLTAGE MEASURE
CURRENT CHARGE MEASURE
CURRENT CONSUMPTION MEASURE
GENSET BATTERIES
PORT STARTING VOLTAGE
CURRENT CHARGE MEASURE
STBD STARTING VOLTAGE

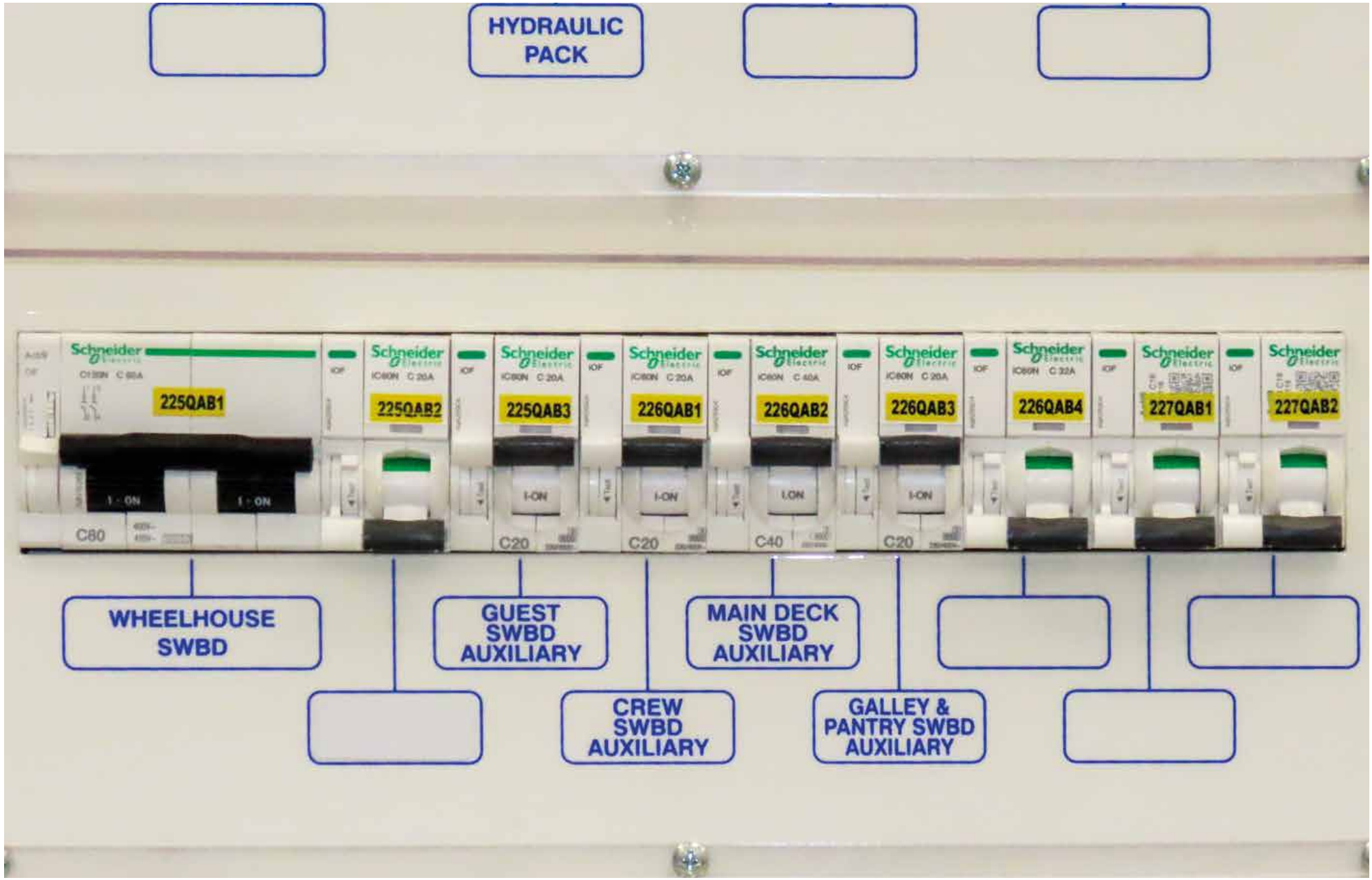
B. Bilge system control buttons and selectors

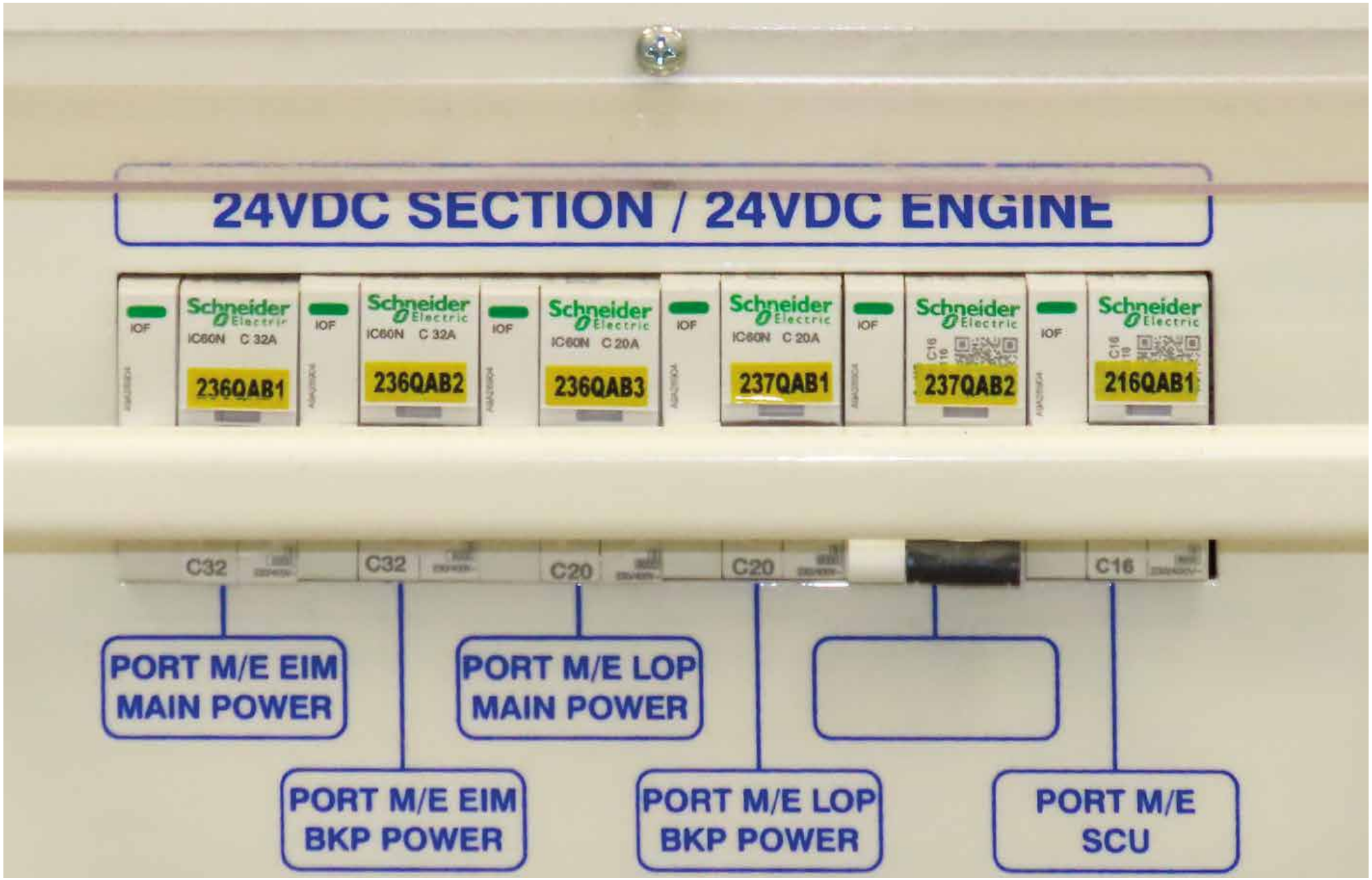


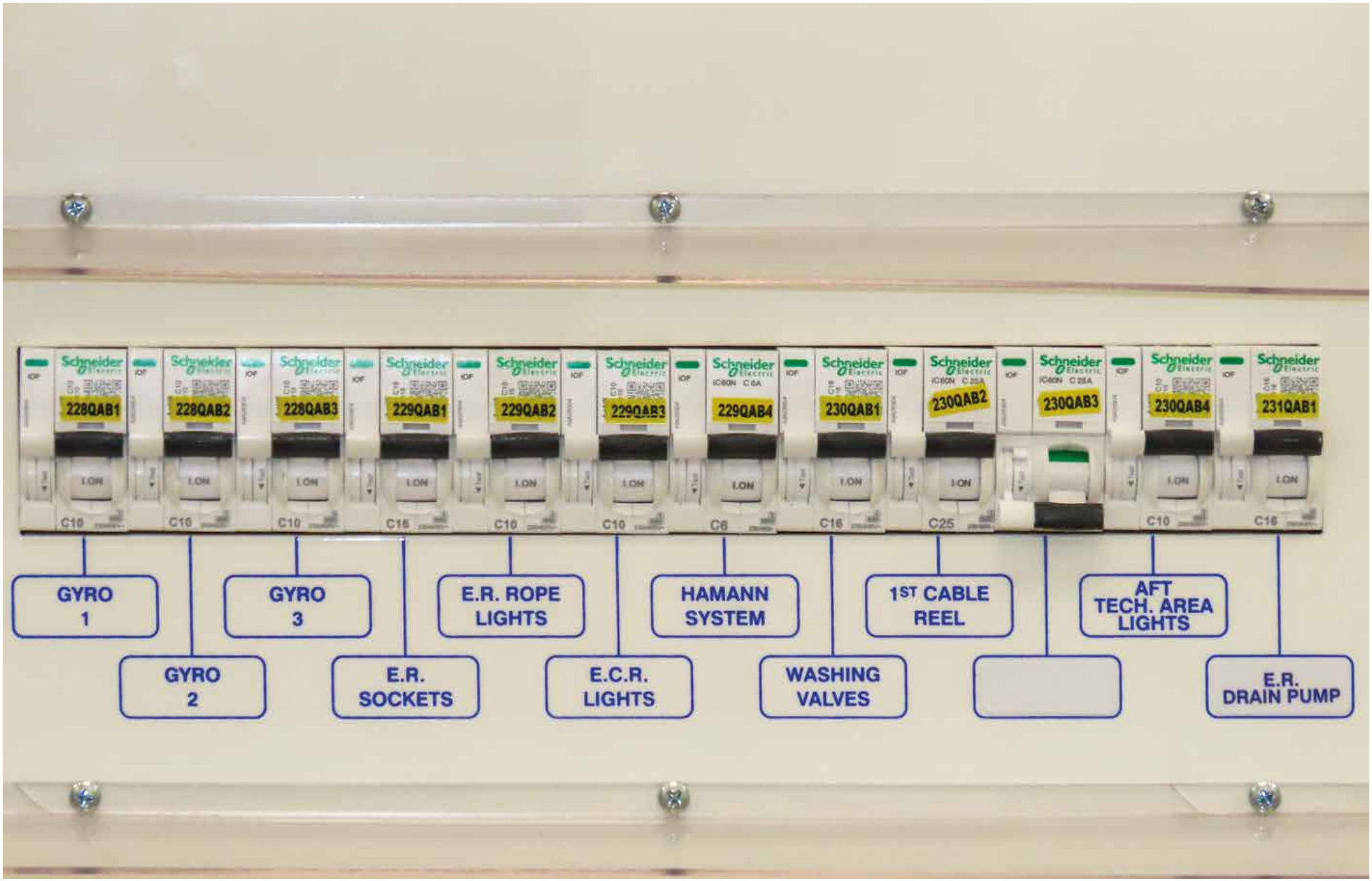

SERVICE BATTERIES
VOLTAGE MEASURE
CURRENT CHARGE MEASURE
CURRENT CONSUMPTION MEASURE
GENSET BATTERIES
PORT STARTING VOLTAGE
CURRENT CHARGE MEASURE
STBD STARTING VOLTAGE

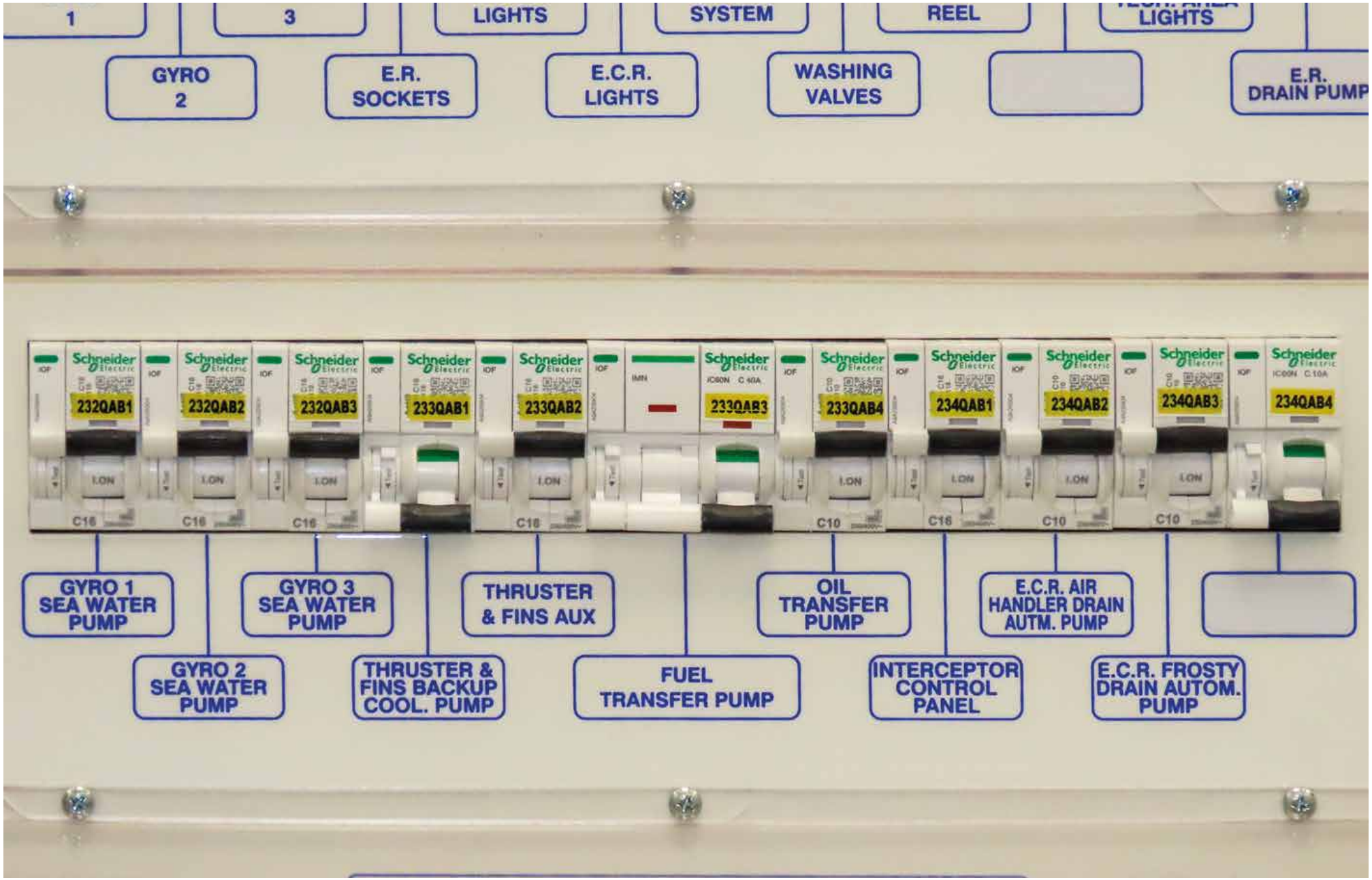
C. Magneto-thermal circuit breakers to protect 24V on-board uses and safety utilities and gangway battery breaker.

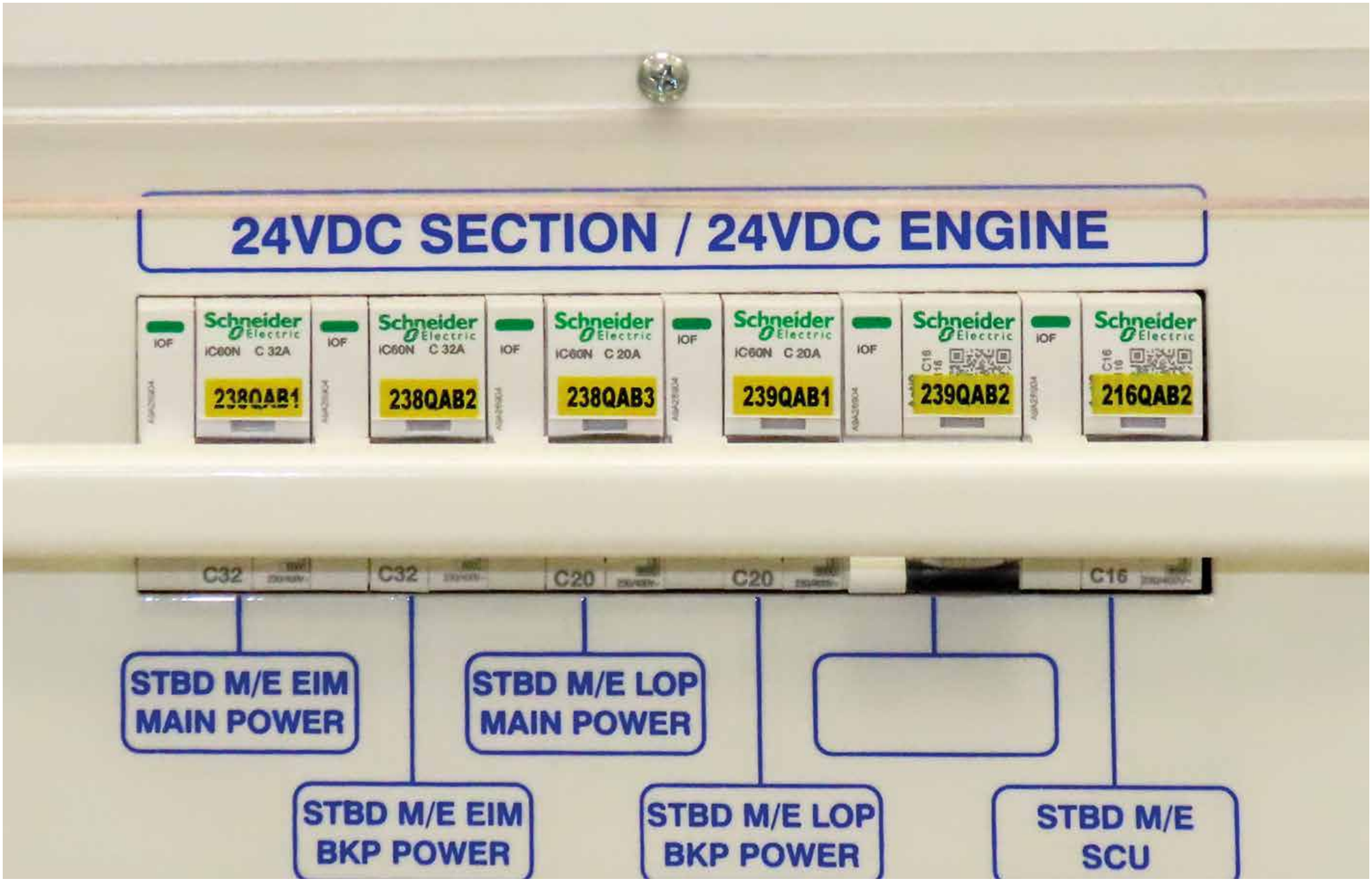



HYDRAULIC PACK
225QAB1
225QAB2
225QAB3
226QAB1
226QAB2
226QAB3
226QAB4
227QAB1
227QAB2
C60
C20
C20
C40
C20
WHEELHOUSE SWBD
GUEST SWBD AUXILIARY
MAIN DECK SWBD AUXILIARY
CREW SWBD AUXILIARY
GALLEY & PANTRY SWBD AUXILIARY

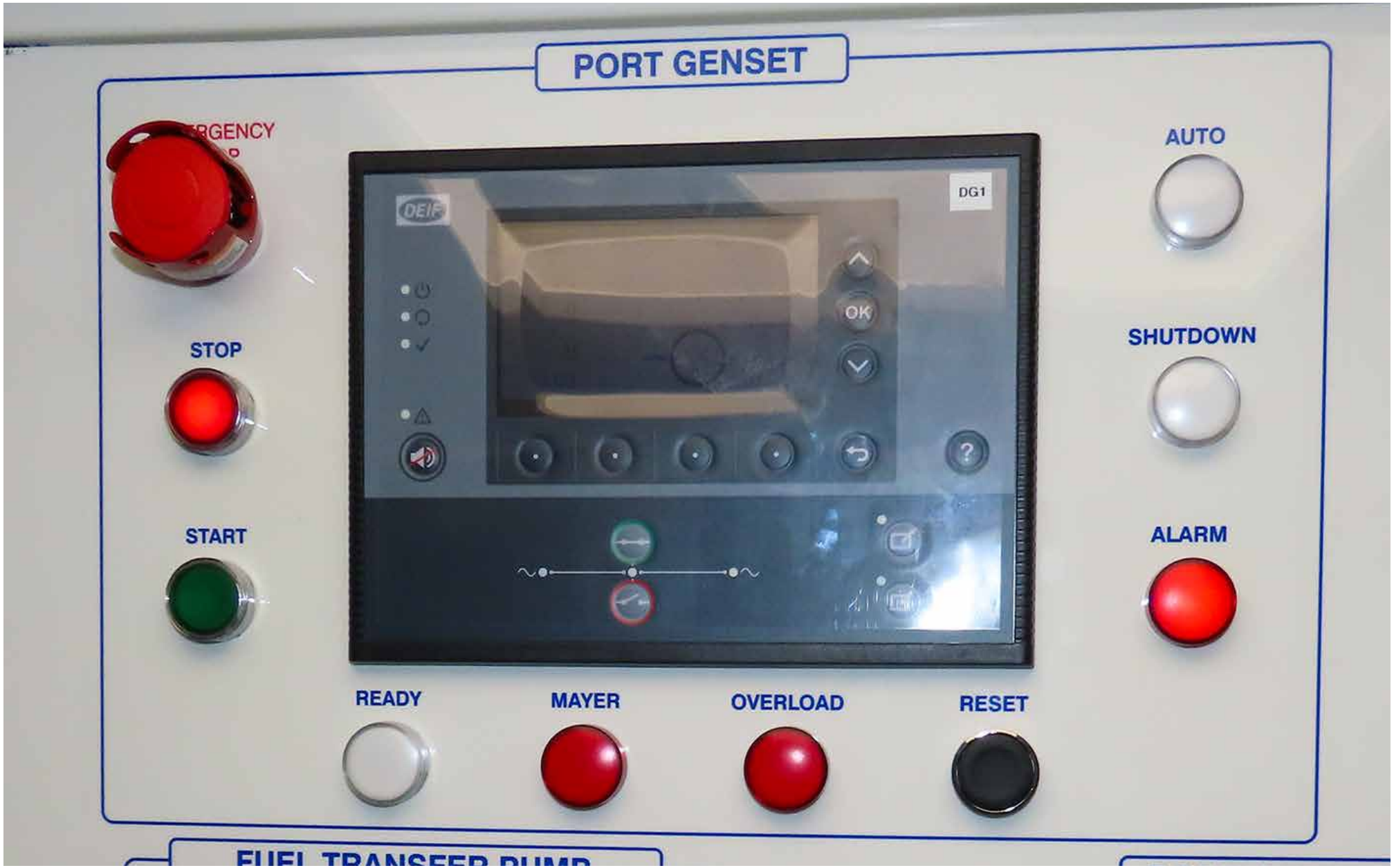

24VDC SECTION / 24VDC ENGINE
Schneider Electric
IOF
IC60N C 32A
236QAB1
IC60N C 32A
236QAB2
IC60N C 20A
236QAB3
IC60N C 20A
237QAB1
237QAB2
216QAB1
C32
C32
C20
C20
C16
PORT M/E EIM MAIN POWER
PORT M/E LOP MAIN POWER
PORT M/E EIM BKP POWER
PORT M/E LOP BKP POWER
PORT M/E SCU

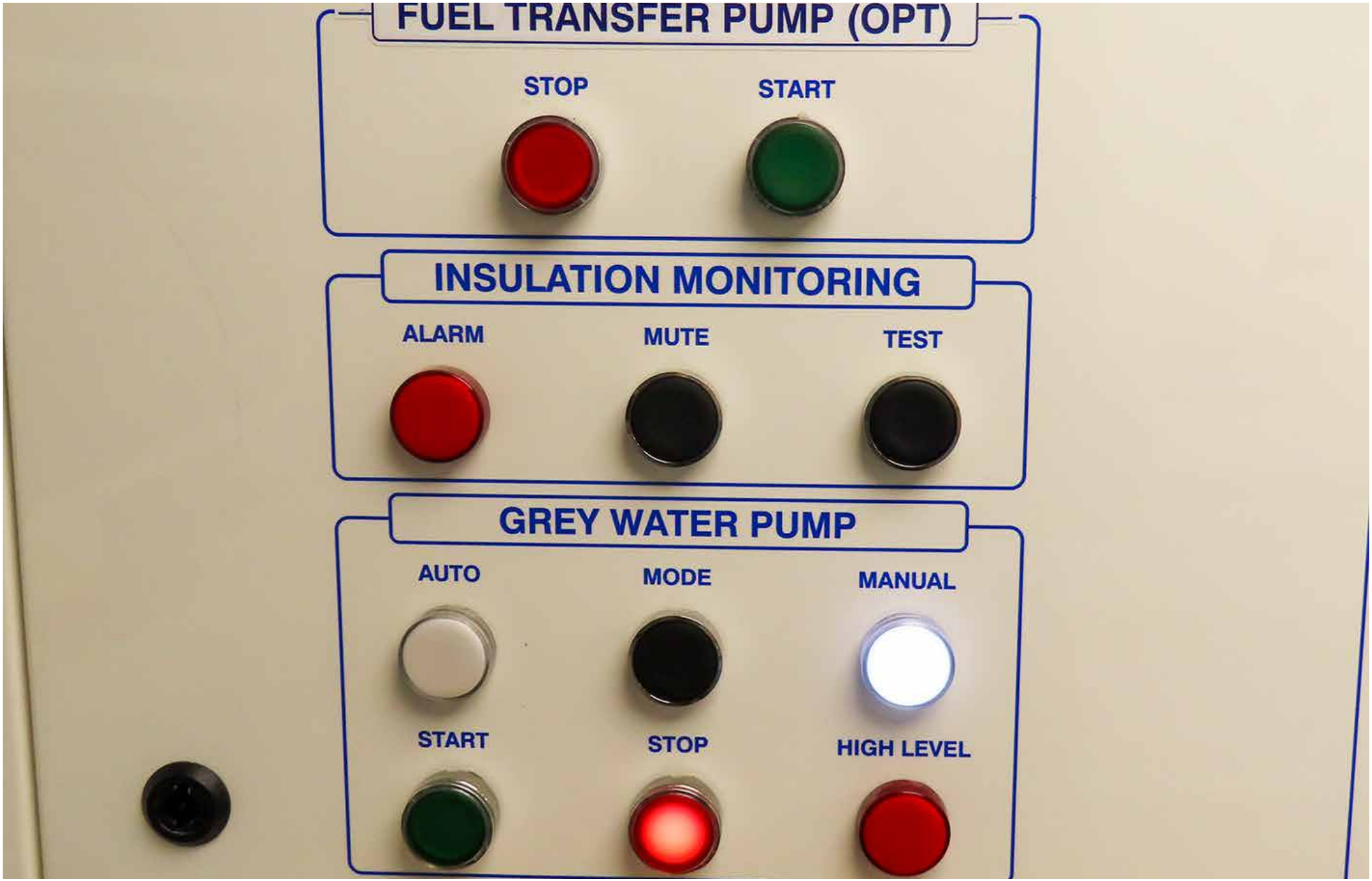

228QAB1
228QAB2
228QAB3
229QAB1
229QAB2
229QAB3
229QAB4
230QAB1
230QAB2
230QAB3
230QAB4
231QAB1
C10
C10
C10
C16
C10
C10
C6
C16
C25
C10
C16
GYRO 1
GYRO 2
GYRO 3
E.R. SOCKETS
E.R. ROPE LIGHTS
E.C.R. LIGHTS
HAMANN SYSTEM
WASHING VALVES
1ST CABLE REEL
AFT TECH. AREA LIGHTS
E.R. DRAIN PUMP


1
3
LIGHTS
SYSTEM
REEL
LIGHTS
GYRO 2
E.R. SOCKETS
E.C.R. LIGHTS
WASHING VALVES
E.R. DRAIN PUMP
232QAB1
232QAB2
232QAB3
233QAB1
233QAB2
233QAB3
233QAB4
234QAB1
234QAB2
234QAB3
234QAB4
GYRO 1 SEA WATER PUMP
GYRO 2 SEA WATER PUMP
GYRO 3 SEA WATER PUMP
THRUSTER & FINS BACKUP COOL. PUMP
THRUSTER & FINS AUX
FUEL TRANSFER PUMP
OIL TRANSFER PUMP
INTERCEPTOR CONTROL PANEL
E.C.R. AIR HANDLER DRAIN AUTM. PUMP
E.C.R. FROSTY DRAIN AUTOM. PUMP


24VDC SECTION / 24VDC ENGINE
Schneider Electric
IOF
iC60N C 32A
238QAB1
iC60N C 32A
238QAB2
iC60N C 20A
238QAB3
iC60N C 20A
239QAB1
239QAB2
216QAB2
C32
C32
C20
C20
C16
STBD M/E EIM MAIN POWER
STBD M/E LOP MAIN POWER
STBD M/E EIM BKP POWER
STBD M/E LOP BKP POWER
STBD M/E SCU

D. Shoreside or generator power supply meters and selectors and black and grey water system control buttons and selectors

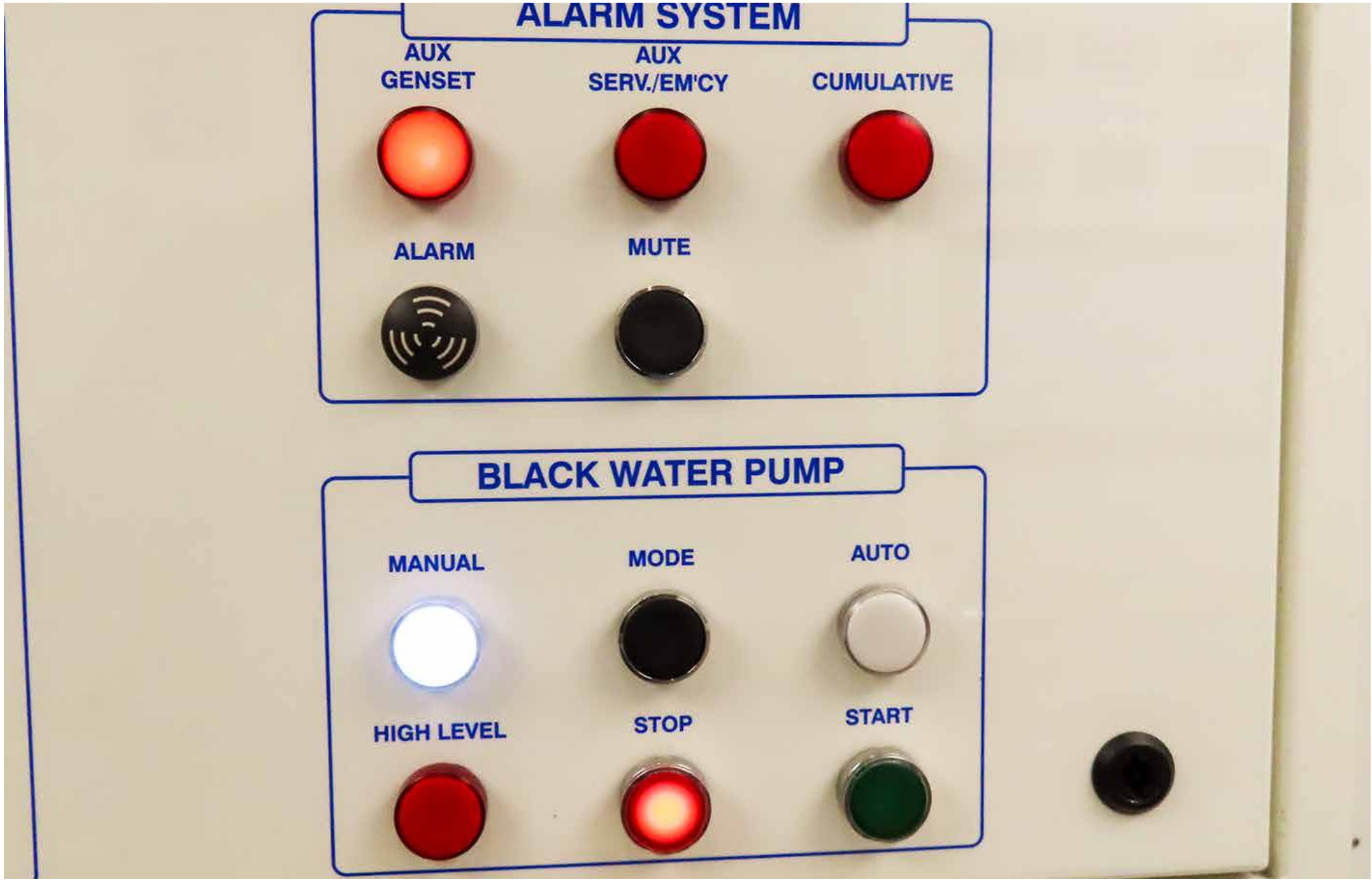



FUEL TRANSFER PUMP (OPT)
STOP
START
INSULATION MONITORING
ALARM
MUTE
TEST
GREY WATER PUMP
AUTO
MODE
MANUAL
START
STOP
HIGH LEVEL

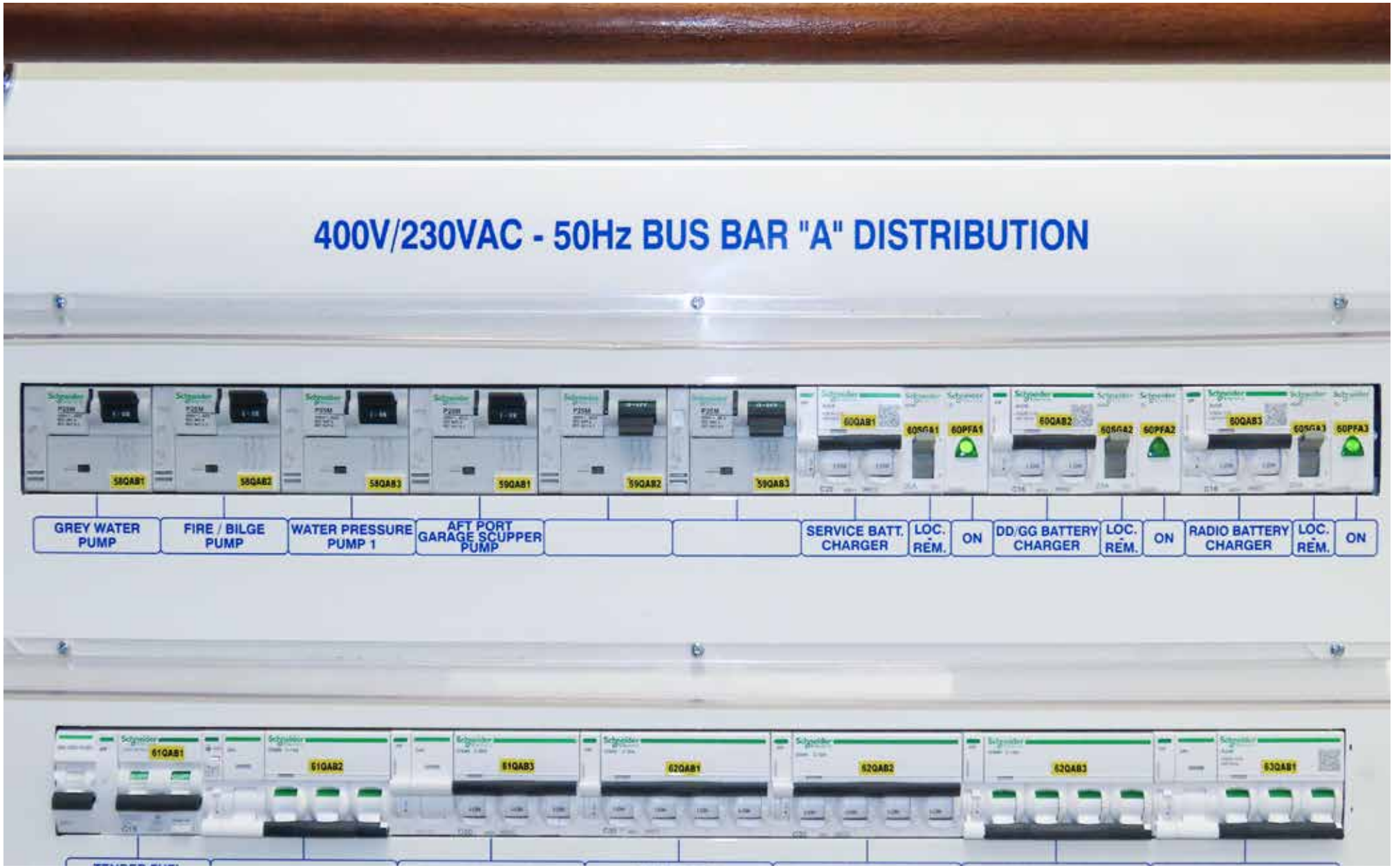

SHORE POWER
DEIF
SC in operation
Alarm
SCB tripped
Block
OK
READY
MAYER
OVERLOAD
RESET

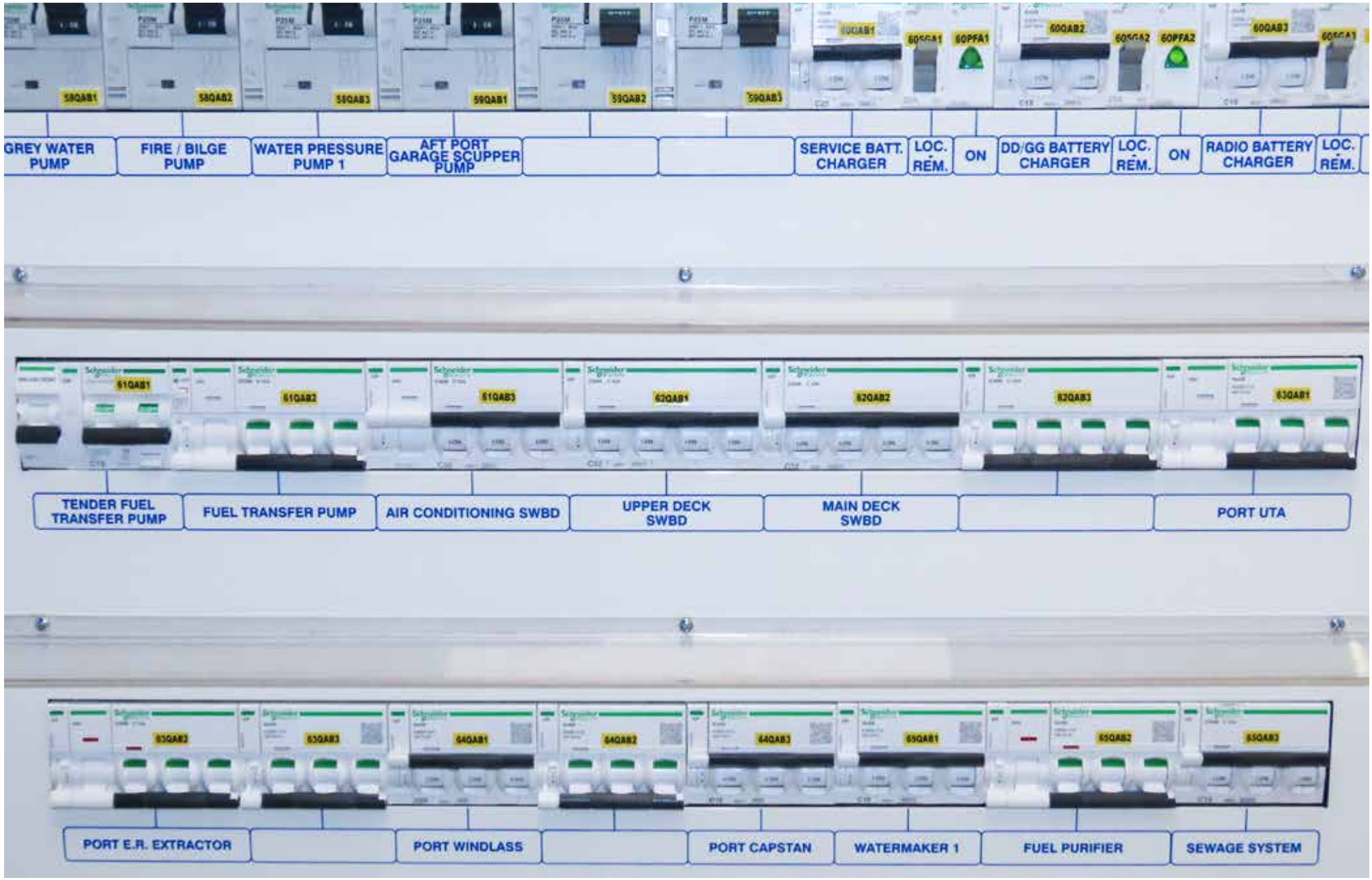

READY
MAYER
OVERLOAD
RESET
PORT GENSET
SHORE POWER
STBD GENSET
OPEN
CLOSE
OPEN
CLOSE
OPEN
CLOSE
WARNING
OPERATE ONLY IN MANUAL AND WITHOUT POWER
NORMAL CONDITION = TIE BREAKER CLOSE
EMERGENCY CONDITION = TIE BREAKER OPEN
BREAKER TRIP
BREAKER TRIP
BREAKER TRIP
OPEN
CLOSE
TIE BREAKER
PMS CONTROL MODE
LOCAL
REMOTE
FAULT
BUSBAR A
BUSBAR B
POWER MANAGEMENT SYSTEM

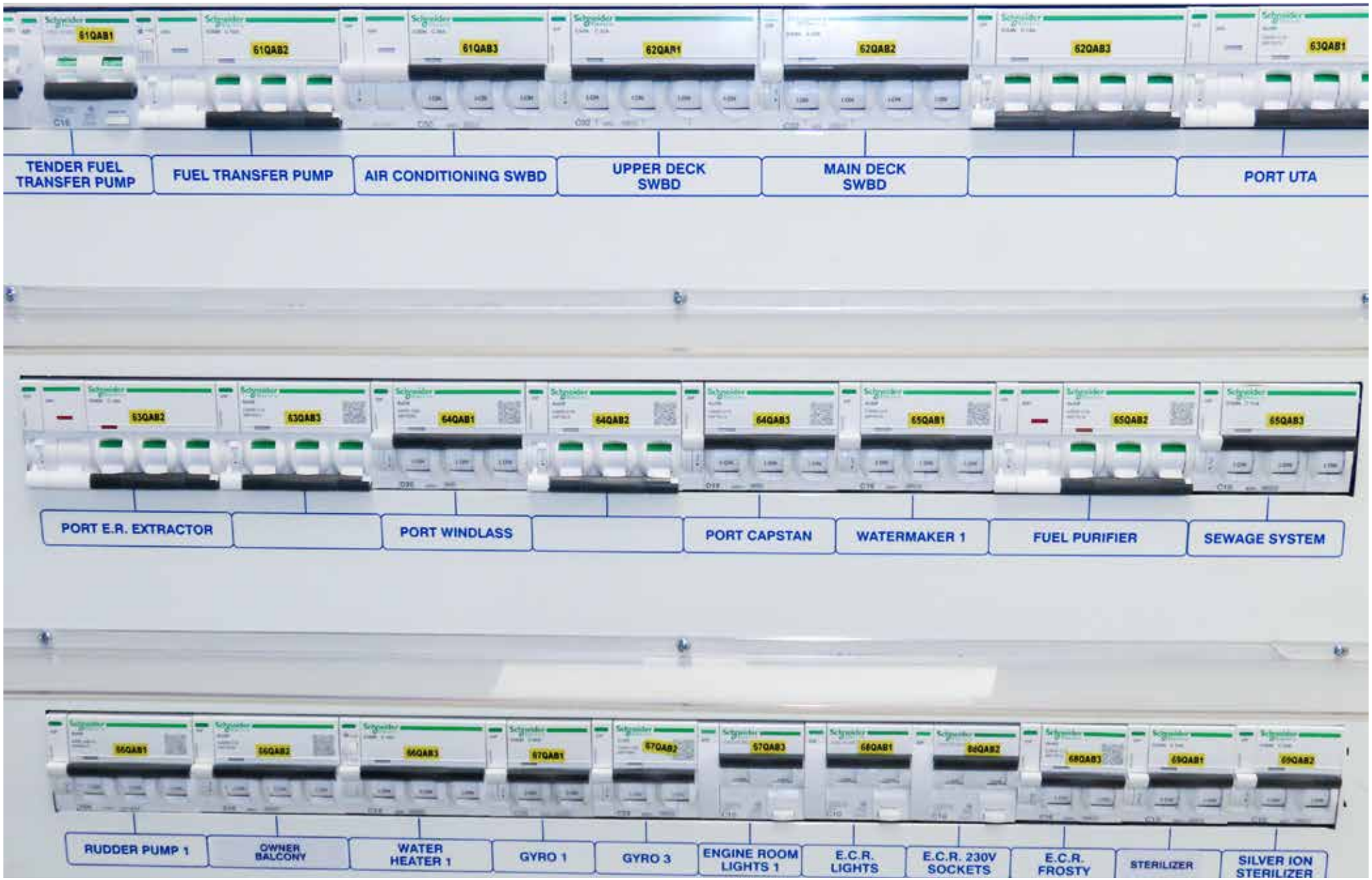

STBD GENSET
AUTO
SHUTDOWN
ALARM
DEIF
DG2
OK
EMER
STOP
START
READY
MAYER
OVERLOAD
RESET
TBD GENSET
ALARM SYSTEM

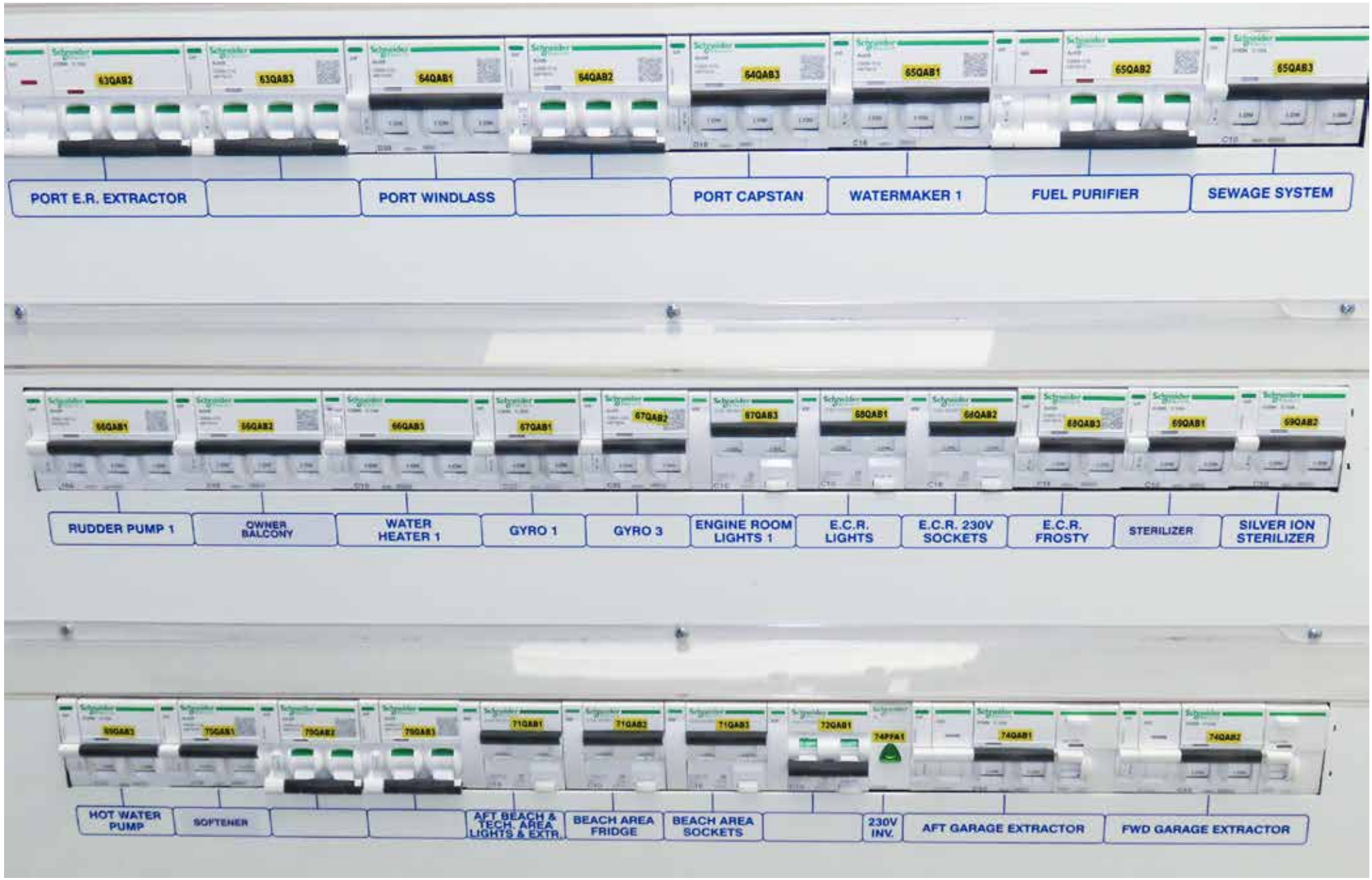

ALARM SYSTEM
AUX GENSET
AUX SERV./EM'CY
CUMULATIVE
ALARM
MUTE
BLACK WATER PUMP
MANUAL
MODE
AUTO
HIGH LEVEL
STOP
START

E . Magneto-thermal circuit breakers to protect 400/230V on-board uses.




58QAB1
58QAB2
58QAB3
59QAB1
59QAB2
59QAB3
60QAB1
60PFA1
60QAB2
60PFA2
60QAB3
GREY WATER PUMP
FIRE / BILGE PUMP
WATER PRESSURE PUMP 1
AFT PORT GARAGE SCUPPER PUMP
SERVICE BATT. CHARGER
LOC. - REM.
ON
DD/GG BATTERY CHARGER
LOC. - REM.
ON
RADIO BATTERY CHARGER
LOC. - REM.
61QAB1
61QAB2
61QAB3
62QAB1
62QAB2
62QAB3
63QAB1
TENDER FUEL TRANSFER PUMP
FUEL TRANSFER PUMP
AIR CONDITIONING SWBD
UPPER DECK SWBD
MAIN DECK SWBD
PORT UTA
63QAB2
63QAB3
64QAB1
64QAB2
64QAB3
65QAB1
65QAB2
65QAB3
PORT E.R. EXTRACTOR
PORT WINDLASS
PORT CAPSTAN
WATERMAKER 1
FUEL PURIFIER
SEWAGE SYSTEM


61QAB1
61QAB2
61QAB3
62QAR1
62QAB2
62QAB3
63QAB1
TENDER FUEL TRANSFER PUMP
FUEL TRANSFER PUMP
AIR CONDITIONING SWBD
UPPER DECK SWBD
MAIN DECK SWBD
PORT UTA
63QAB2
63QAB3
64QAB1
64QAB2
64QAB3
65QAB1
65QAB2
65QAB3
PORT E.R. EXTRACTOR
PORT WINDLASS
PORT CAPSTAN
WATERMAKER 1
FUEL PURIFIER
SEWAGE SYSTEM
66QAB1
66QAB2
66QAB3
67QAB1
67QAB2
67QAB3
68QAB1
68QAB2
68QAB3
69QAB1
69QAB2
RUDDER PUMP 1
OWNER BALCONY
WATER HEATER 1
GYRO 1
GYRO 3
ENGINE ROOM LIGHTS 1
E.C.R. LIGHTS
E.C.R. 230V SOCKETS
E.C.R. FROSTY
STERILIZER
SILVER ION STERILIZER


63QAB2
63QAB3
64QAB1
64QAB2
64QAB3
65QAB1
65QAB2
65QAB3
PORT E.R. EXTRACTOR
PORT WINDLASS
PORT CAPSTAN
WATERMAKER 1
FUEL PURIFIER
SEWAGE SYSTEM
66QAB1
66QAB2
66QAB3
67QAB1
67QAB2
67QAB3
68QAB1
68QAB2
68QAB3
69QAB1
69QAB2
RUDDER PUMP 1
OWNER BALCONY
WATER HEATER 1
GYRO 1
GYRO 3
ENGINE ROOM LIGHTS 1
E.C.R. LIGHTS
E.C.R. 230V SOCKETS
E.C.R. FROSTY
STERILIZER
SILVER ION STERILIZER
70QAB1
70QAB2
70QAB3
71QAB1
71QAB2
71QAB3
72QAB1
74FFA1
74QAB1
74QAB2
HOT WATER PUMP
SOFTENER
AFT BEACH & TECH. AREA LIGHTS & EXTR.
BEACH AREA FRIDGE
BEACH AREA SOCKETS
230V INV.
AFT GARAGE EXTRACTOR
FWD GARAGE EXTRACTOR


66QAB1
66QAB2
66QAB3
67QAB1
67QAR2
67QAB3
68QAB1
68QAB2
69QAB3
69QAB1
69QAB2
RUDDER PUMP 1
OWNER BALCONY
WATER HEATER 1
GYRO 1
GYRO 3
ENGINE ROOM LIGHTS 1
E.C.R. LIGHTS
E.C.R. 230V SOCKETS
E.C.R. FROSTY
STERILIZER
SILVER ION STERILIZER
69QAB3
70QAB1
70QAB2
70QAB3
71QAB1
71QAB2
71QAB3
72QAB1
74PFA1
74QAB1
74QAB2
HOT WATER PUMP
SOFTENER
AFT BEACH & TECH. AREA LIGHTS & EXTR.
BEACH AREA FRIDGE
BEACH AREA SOCKETS
230V INV.
AFT GARAGE EXTRACTOR
FWD GARAGE EXTRACTOR


400V/230VAC - 50Hz BUS BAR "B" DISTRIBUTION
BLACK WATER PUMP
BILGE / FIRE PUMP
WATER PRESSURE PUMP 2
AFT STBD GARAGE SCUPPER PUMP
GREY TO BLACK TRANSFER PUMP
BATT.CHARGER RESCUE BOAT GENERATOR
MM/EE BATTERY CHARGER
LOC. REM.
ON
EM'CY BATTERY CHARGER
LOC. REM.
ON
GALLEY SWBD
GUEST SWBD
EXTERNAL SWBD
CREW SWBD
MD UTA
STBD UTA


93QAB1
93QAB2
93QAB3
94QAB1
94QAB2
94QAB3
95QAB1
95QAB2
95QAB3
95SGA1
95PFA1
96QAB1
96SGA1
BLACK WATER PUMP
BILGE / FIRE PUMP
WATER PRESSURE PUMP 2
AFT STBD GARAGE SCUPPER PUMP
GREY TO BLACK TRANSFER PUMP
BATT.CHARGER RESCUE BOAT GENERATOR
MM/EE BATTERY CHARGER
LOC. REM.
ON
EM'CY BATTERY CHARGER
LOC. REM.
96QAB2
96QAB3
97QAB1
97QAB2
97QAB3
98QAB1
98QAB2
GALLEY SWBD
GUEST SWBD
EXTERNAL SWBD
CREW SWBD
MD UTA
STBD UTA
98QAB3
99QAB1
99QAB2
99QAB3
100QAB1
100QAB2
100QAB3
101QAB
101QAB2
STBD E.R. EXTRACTOR
STBD WINDLASS
STBD CAPSTAN
WATERMAKER 2
STABILIZER SWBD
120VAC SOCKETS CONVERTER


GALLEY SWBD
GUEST SWBD
EXTERNAL SWBD
CREW SWBD
MD UTA
STBD UTA
STBD E.R. EXTRACTOR
STBD WINDLASS
STBD CAPSTAN
WATERMAKER 2
STABILIZER SWBD
120VAC SOCKETS CONVERTER
RUDDER PUMP 2
WATER HEATER 2
GYRO 2
ENGINE ROOM LIGHTS 2
E.R. 400V SOCKETS
FWD GARAGE HATCH & CRANE
AFT GARAGE MOVEMENTS
AIR COMPRESSOR


STBD E.R. EXTRACTOR
STBD WINDLASS
STBD CAPSTAN
WATERMAKER 2
STABILIZER SWBD
120VAC SOCKETS CONVERTER
RUDDER PUMP 2
WATER HEATER 2
GYRO 2
ENGINE ROOM LIGHTS 2
E.R. 400V SOCKETS
FWD GARAGE HATCH & CRANE
AFT GARAGE MOVEMENTS
AIR COMPRESSOR
A/V UPS
FWD GARAGE & CHAIN LOCKER LIGHTS
AFT GARAGE LIGHTS
E.C.R. AIR HANDLER
FIRE PANEL
E.R. 230V SOCKETS
WATERTIGHT
BEACH AREA


RUDDER PUMP 2
WATER HEATER 2
GYRO 2
ENGINE ROOM LIGHTS 2
E.R. 400V SOCKETS
FWD GARAGE HATCH & CRANE
AFT GARAGE MOVEMENTS
AIR COMPRESSOR
105QAB1
105QAB2
105QAB3
106QAB1
106QAB2
106QAB3
107QAB1
107QAB2
107QAB3
108QAB1
108QAB2
109QAB1
109SG1
109PFA1
A/V UPS
FWD GARAGE & CHAIN LOCKER LIGHTS
AFT GARAGE LIGHTS
E.C.R. AIR HANDLER
FIRE PANEL
E.R. 230V SOCKETS
WATERTIGHT DOOR
BEACH AREA EMPTYING PUMP
SUB LIGHTS
LOC REM
LOC. ON
210AA1
210AA1

HELM STATION ELECTRICAL PANEL:
The electrical panel is located in the corridor used to access the helm station.

To simplify panel descriptions, the main sections are as follows:

A. Magneto-thermal circuit breakers to protect on-board uses.

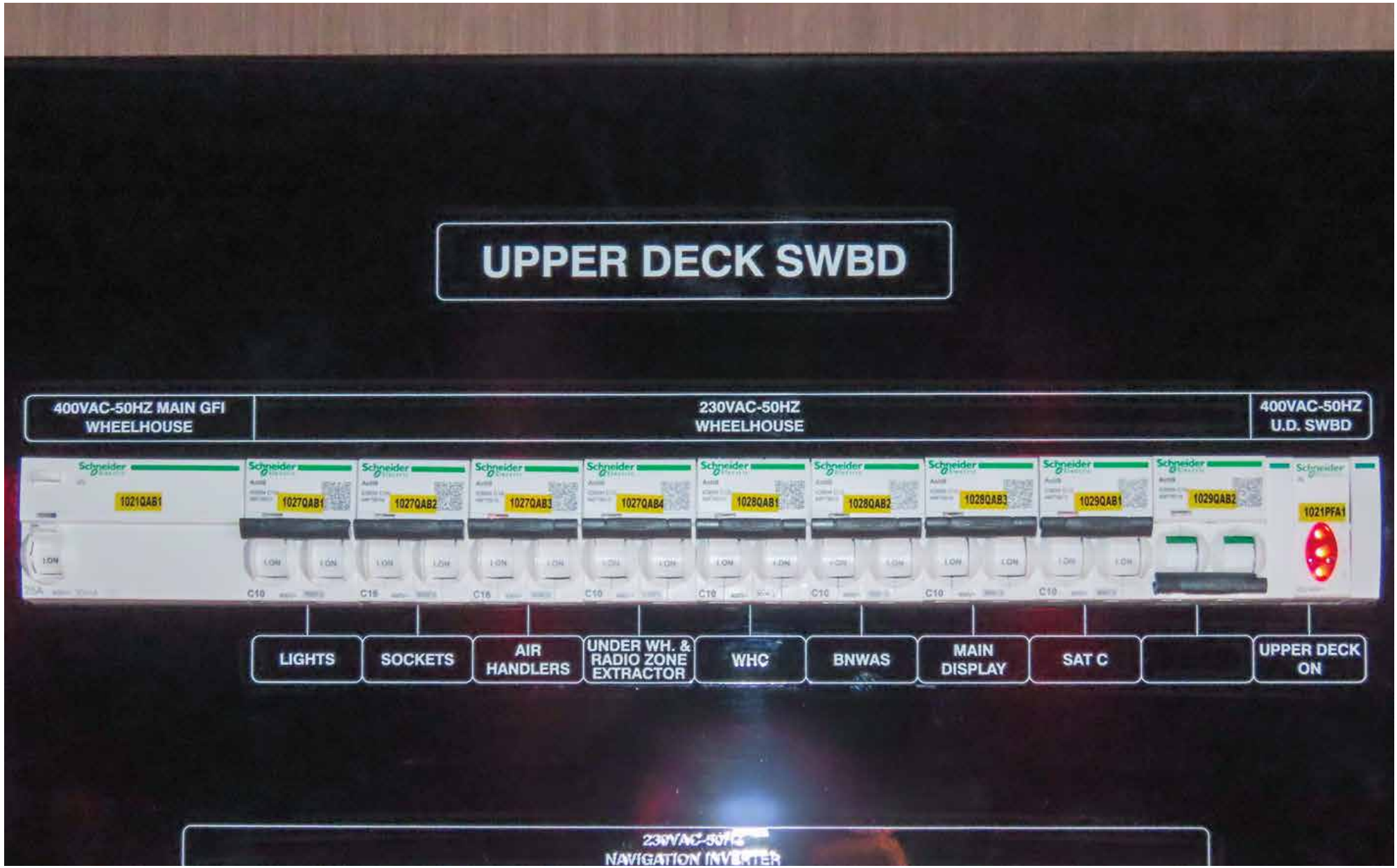
B. On-board synoptic.

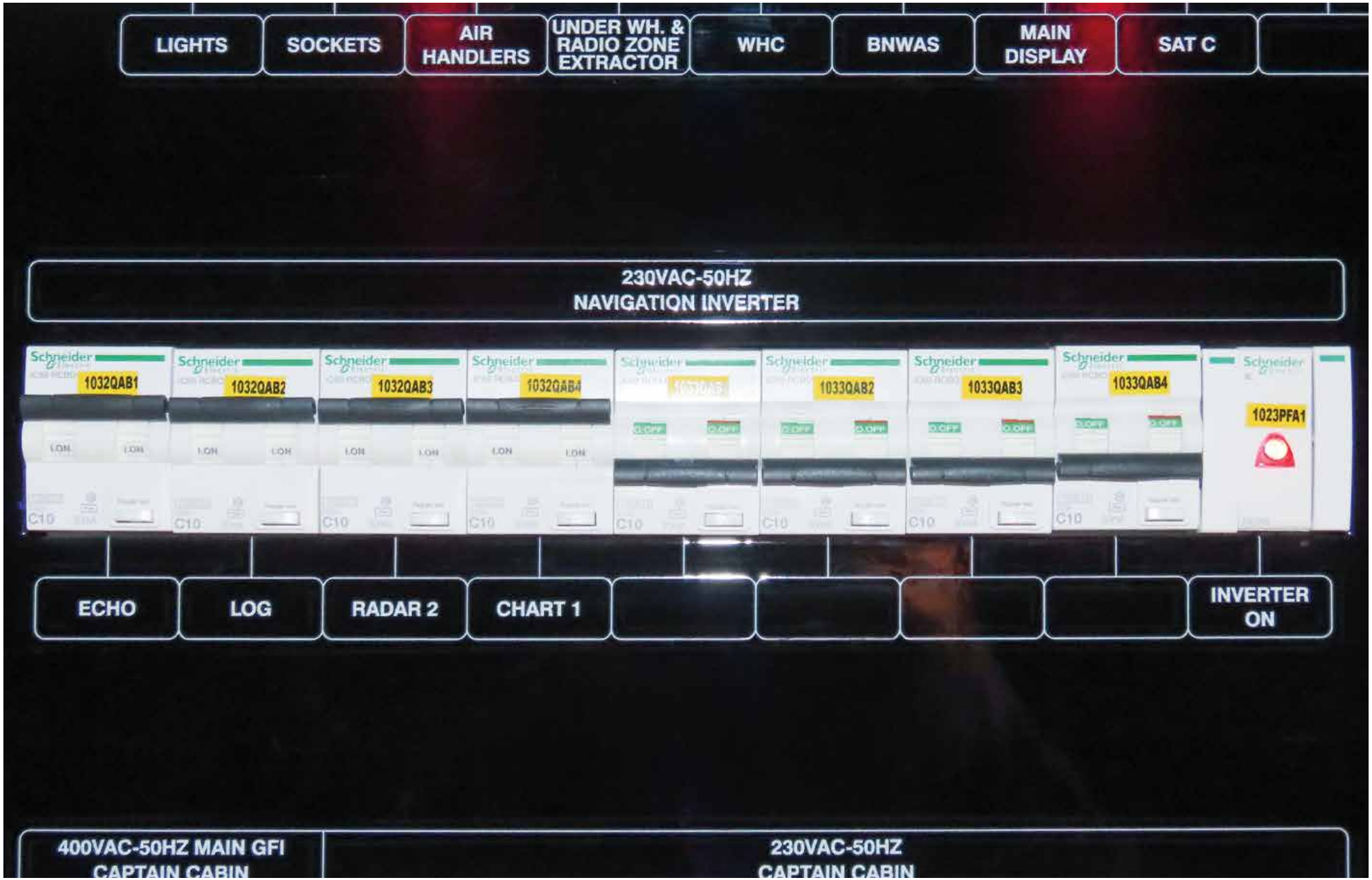
C. Magneto-thermal circuit breakers and emergency battery gauges.

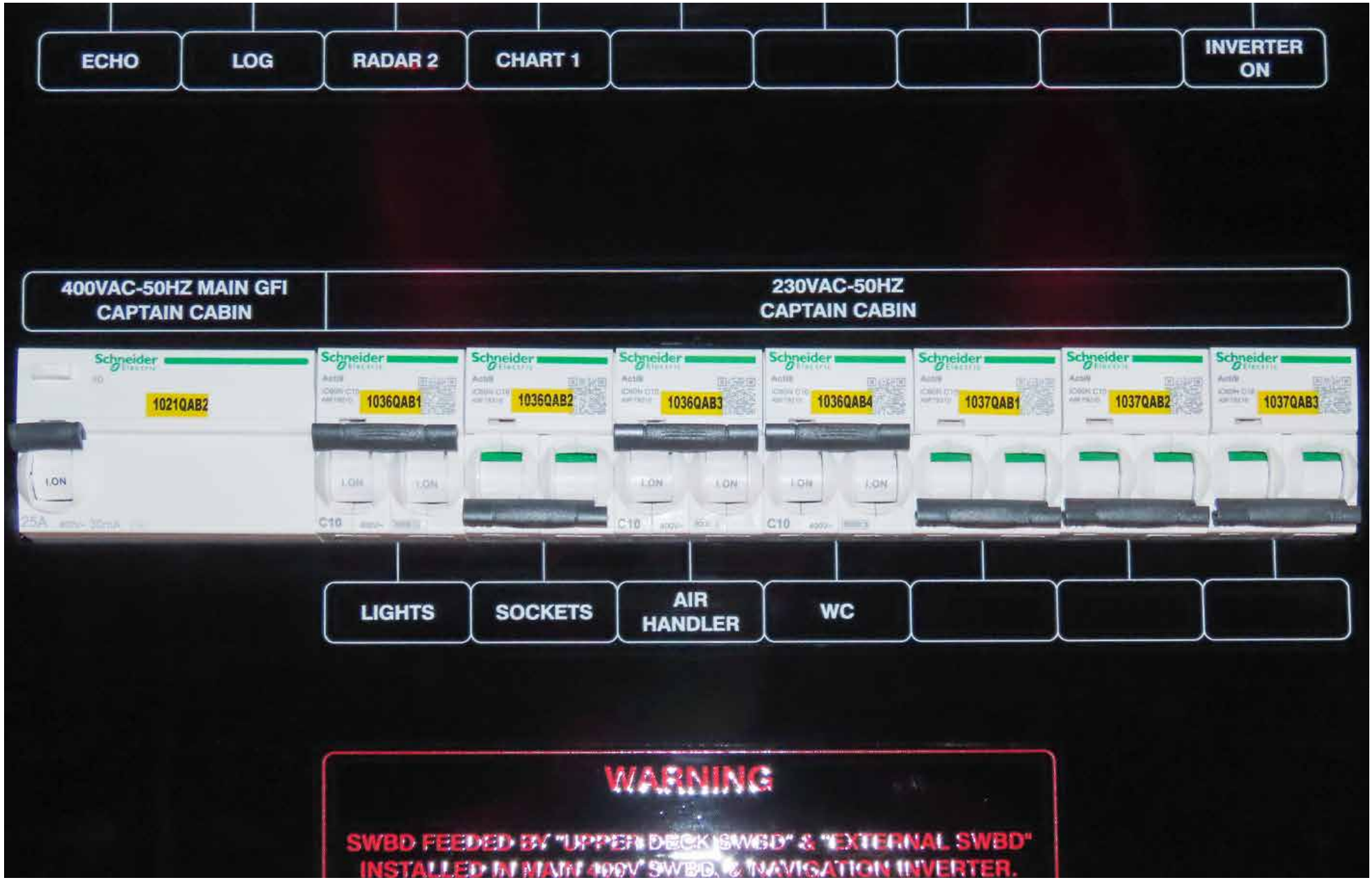
D. Magneto-thermal circuit breakers and radio battery state-of-charge meters.

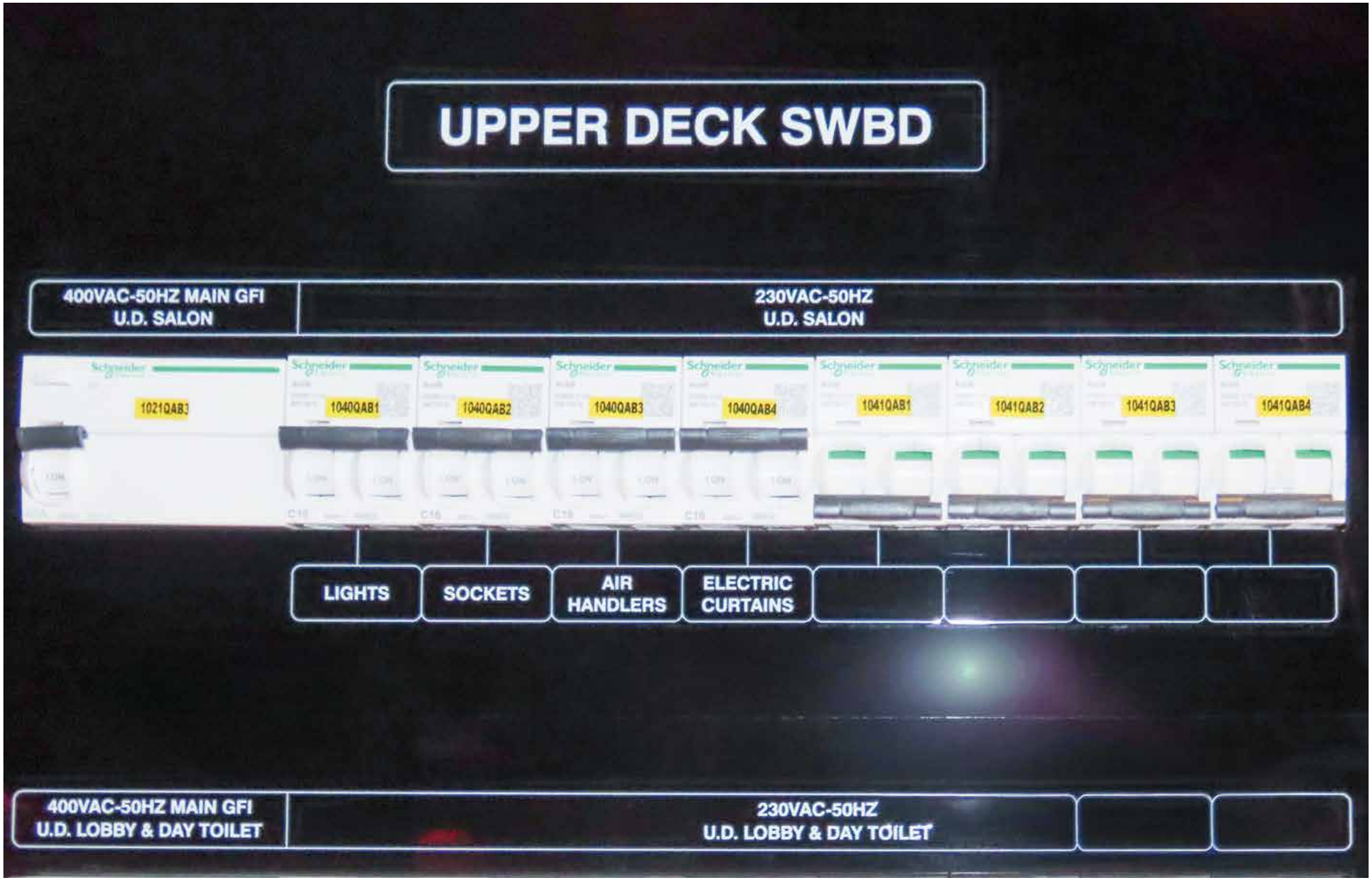
NOTE
For a detailed description refer to the electric installation manual.

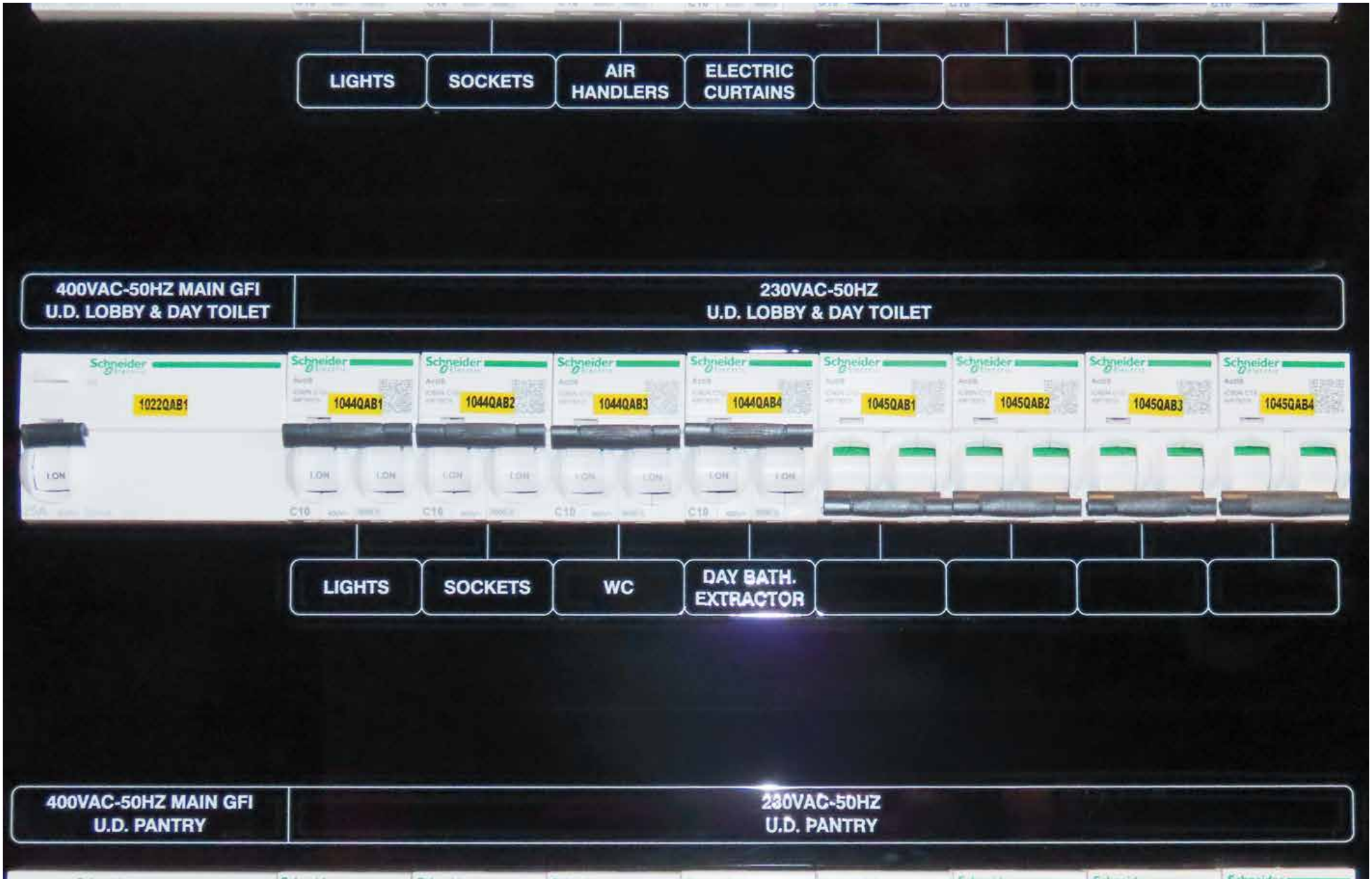
A. Magneto-thermal circuit breakers to protect on-board uses.

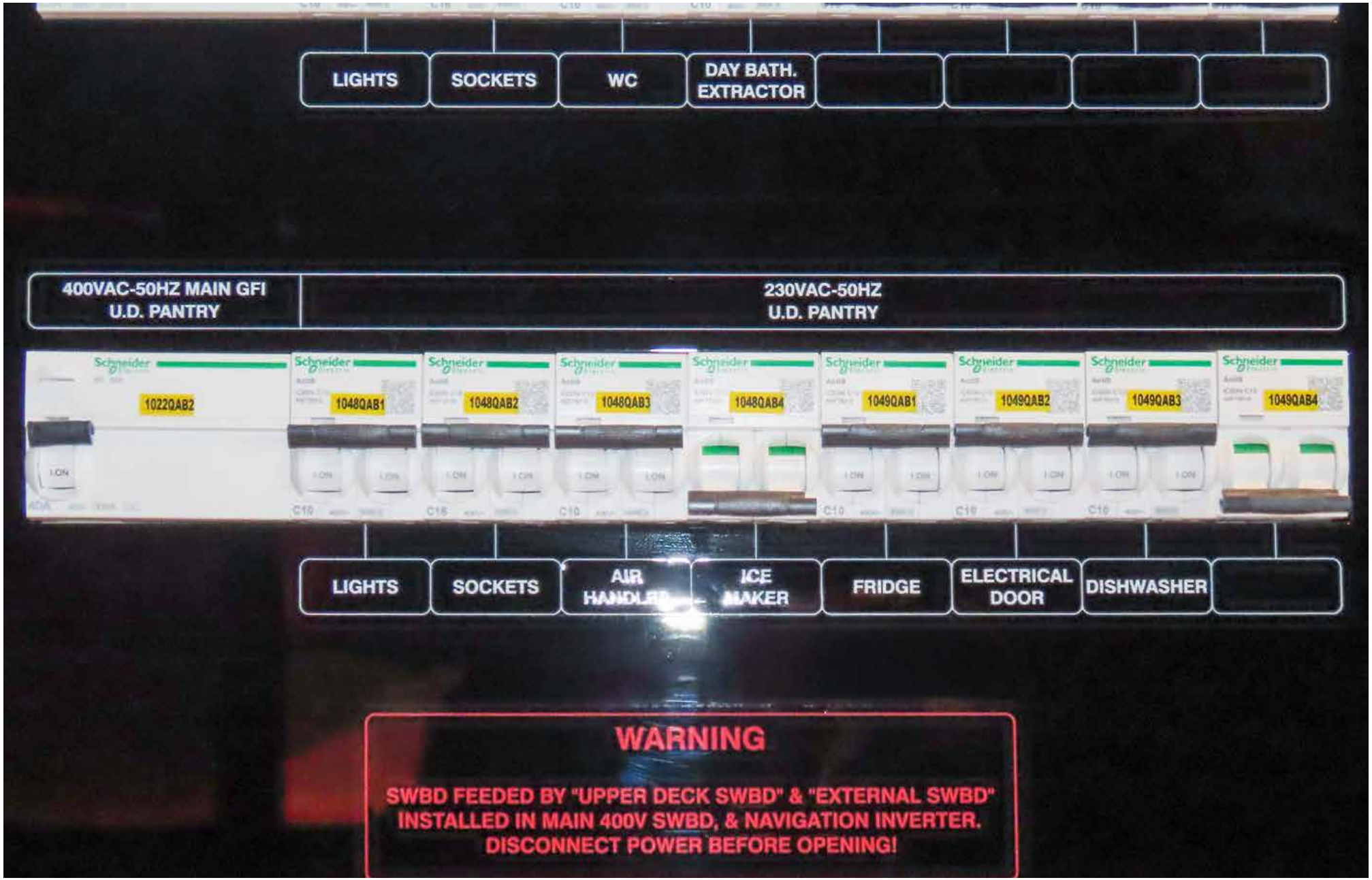


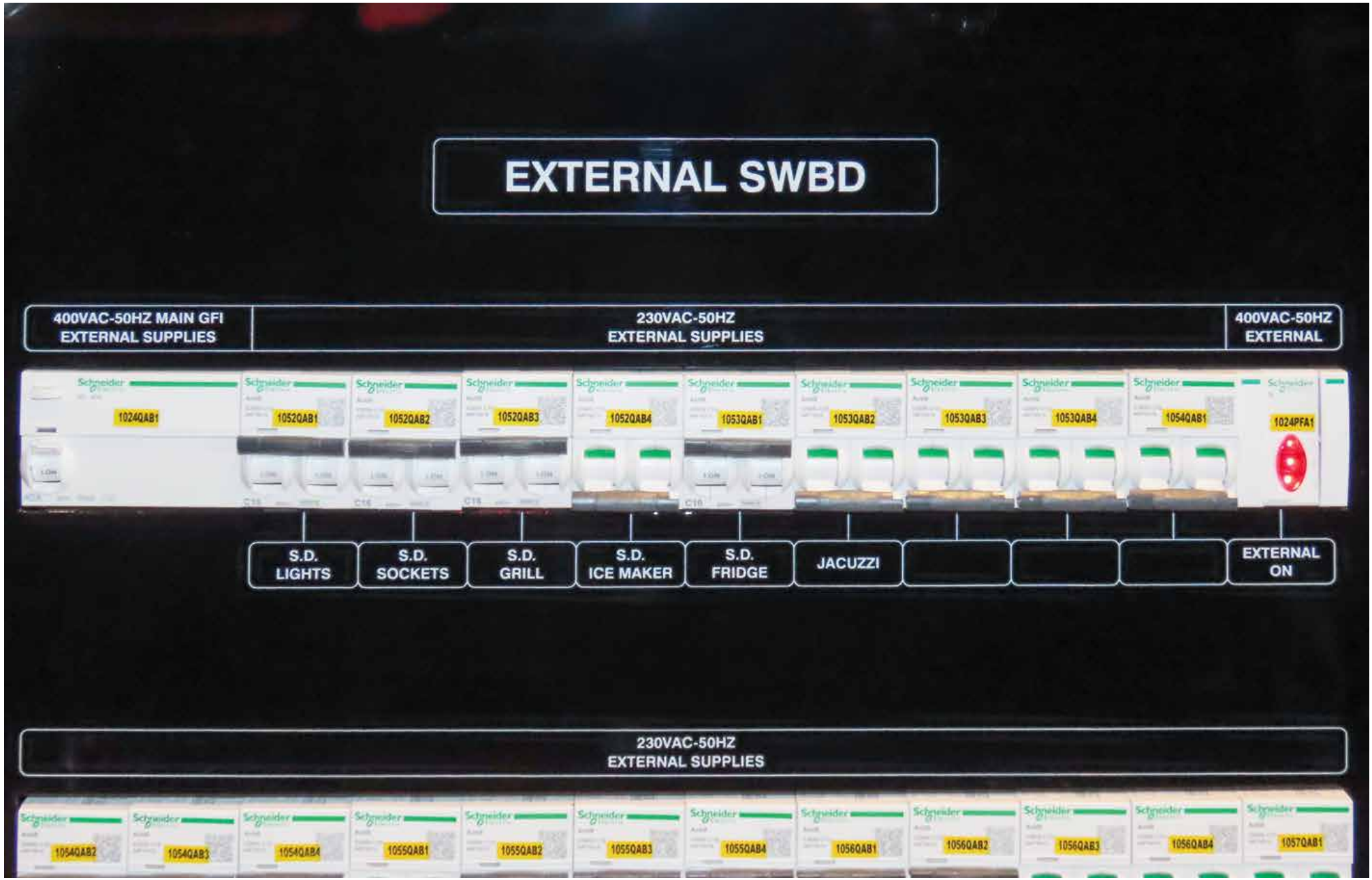

LIGHTS
SOCKETS
AIR HANDLERS
UNDER WH. & RADIO ZONE EXTRACTOR
WHC
BNWAS
MAIN DISPLAY
SAT C
230VAC-50HZ
NAVIGATION INVERTER
1032QAB1
1032QAB2
1032QAB3
1032QAB4
1033QAB2
1033QAB3
1033QAB4
1023PFA1
ECHO
LOG
RADAR 2
CHART 1
INVERTER ON
400VAC-50HZ MAIN GFI
CAPTAIN CABIN
230VAC-50HZ
CAPTAIN CABIN

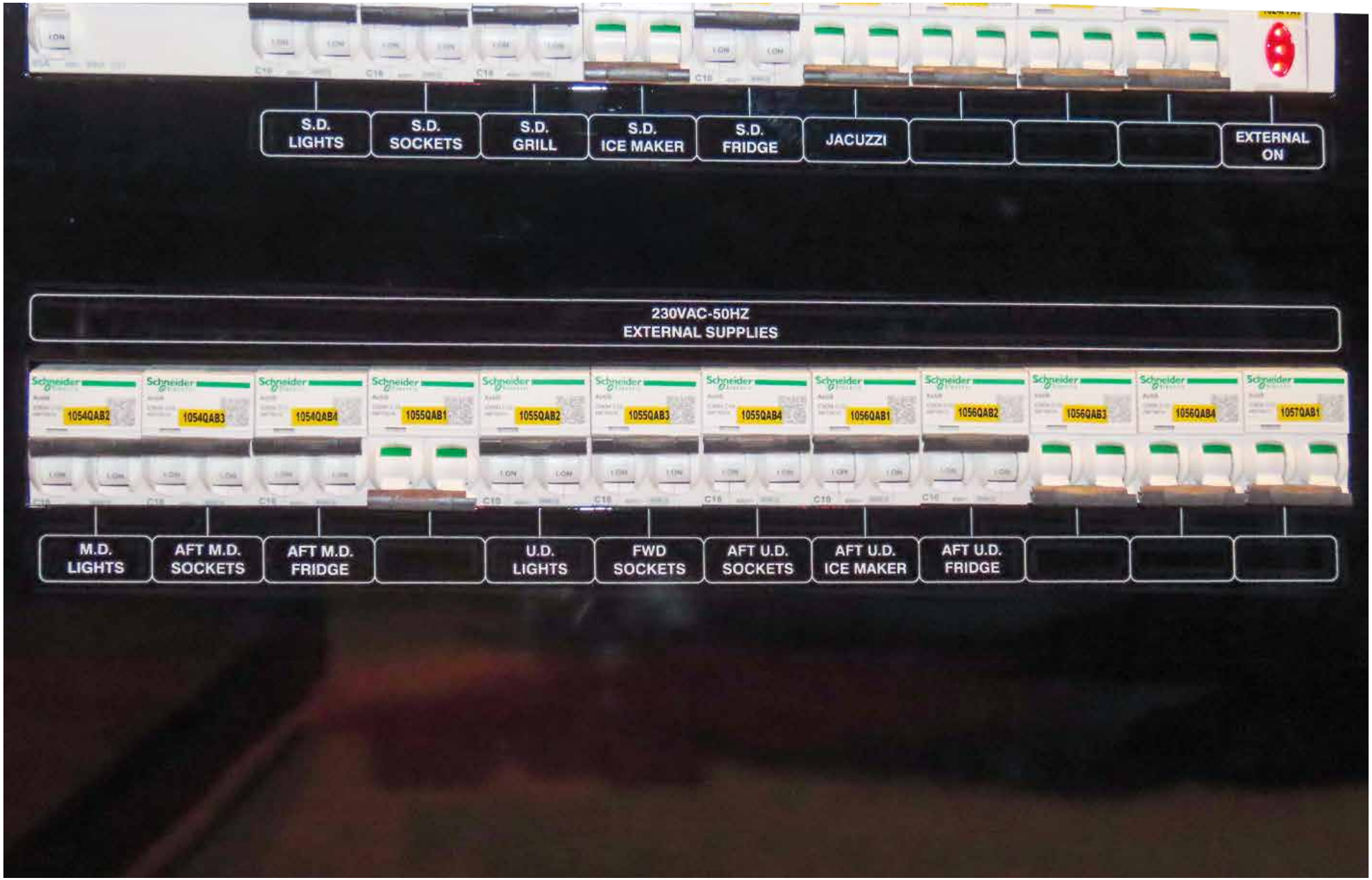

ECHO
LOG
RADAR 2
CHART 1
INVERTER ON
400VAC-50HZ MAIN GFI CAPTAIN CABIN
230VAC-50HZ CAPTAIN CABIN
Schneider
1021QAB2
1036QAB1
1036QAB2
1036QAB3
1036QAB4
1037QAB1
1037QAB2
1037QAB3
I.ON
25A
C10
LIGHTS
SOCKETS
AIR HANDLER
WC
WARNING
SWBD FEEDED BY "UPPER DECK SWBD" & "EXTERNAL SWBD"
INSTALLED IN MAIN 400V SWBD. & NAVIGATION INVERTER.


UPPER DECK SWBD
400VAC-50HZ MAIN GFI
U.D. SALON
230VAC-50HZ
U.D. SALON
1021QAB3
1040QAB1
1040QAB2
1040QAB3
1040QAB4
1041QAB1
1041QAB2
1041QAB3
1041QAB4
LIGHTS
SOCKETS
AIR HANDLERS
ELECTRIC CURTAINS
400VAC-50HZ MAIN GFI
U.D. LOBBY & DAY TOILET
230VAC-50HZ
U.D. LOBBY & DAY TOILET

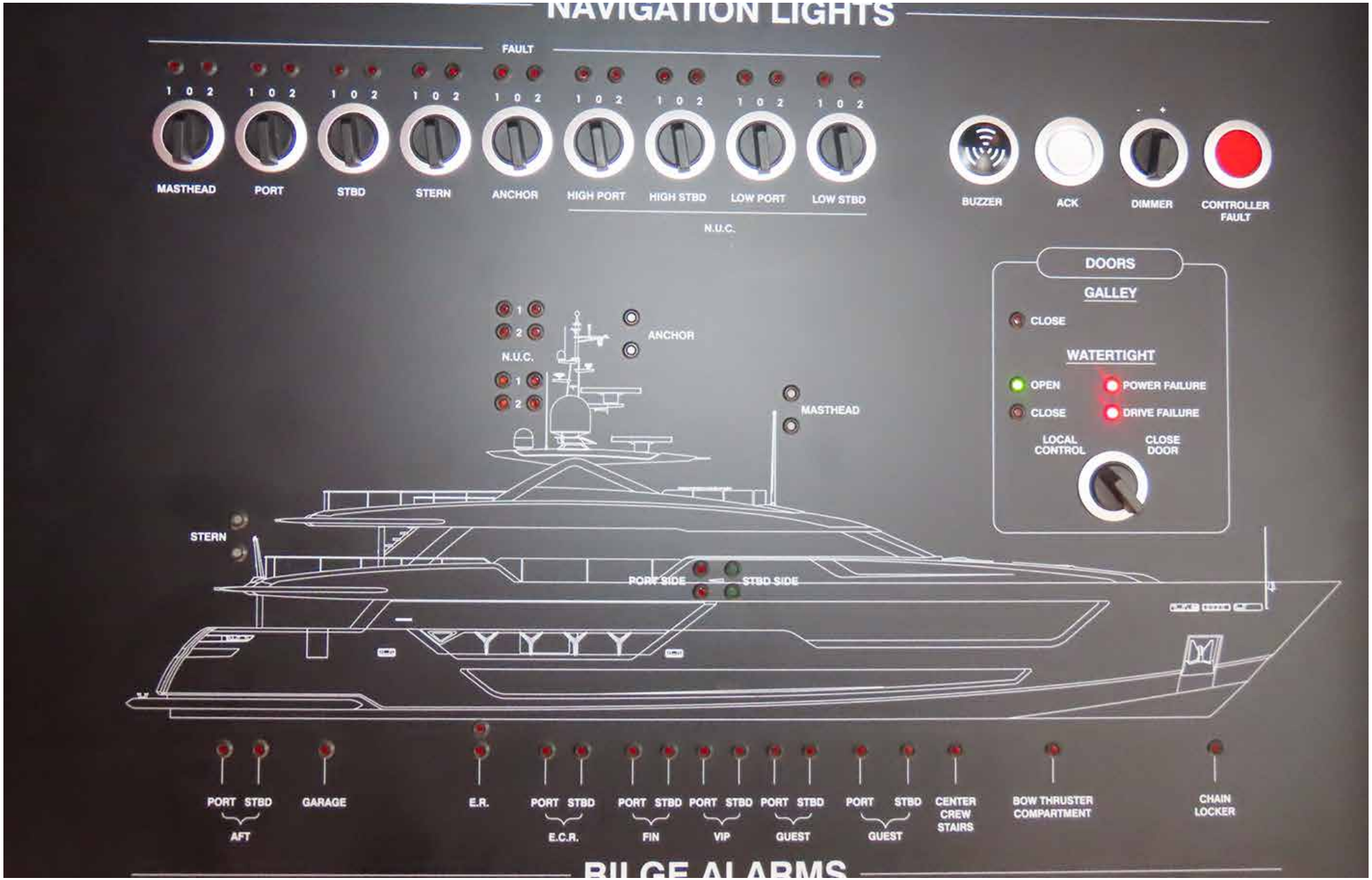

LIGHTS
SOCKETS
AIR HANDLERS
ELECTRIC CURTAINS
400VAC-50HZ MAIN GFI
U.D. LOBBY & DAY TOILET
230VAC-50HZ
U.D. LOBBY & DAY TOILET
1022QAB1
1044QAB1
1044QAB2
1044QAB3
1044QAB4
1045QAB1
1045QAB2
1045QAB3
1045QAB4
LIGHTS
SOCKETS
WC
DAY BATH. EXTRACTOR
400VAC-50HZ MAIN GFI
U.D. PANTRY
230VAC-50HZ
U.D. PANTRY


LIGHTS
SOCKETS
WC
DAY BATH. EXTRACTOR
400VAC-50HZ MAIN GFI U.D. PANTRY
230VAC-50HZ U.D. PANTRY
1022QAB2
1048QAB1
1048QAB2
1048QAB3
1048QAB4
1049QAB1
1049QAB2
1049QAB3
1049QAB4
LIGHTS
SOCKETS
AIR HANDLER
ICE MAKER
FRIDGE
ELECTRICAL DOOR
DISHWASHER
WARNING
SWBD FEEDED BY "UPPER DECK SWBD" & "EXTERNAL SWBD"
INSTALLED IN MAIN 400V SWBD, & NAVIGATION INVERTER.
DISCONNECT POWER BEFORE OPENING!


EXTERNAL SWBD
400VAC-50HZ MAIN GFI EXTERNAL SUPPLIES
230VAC-50HZ EXTERNAL SUPPLIES
400VAC-50HZ EXTERNAL
1024QAB1
1052QAB1
1052QAB2
1052QAB3
1052QAB4
1053QAB1
1053QAB2
1053QAB3
1053QAB4
1054QAB1
1024PFA1
S.D. LIGHTS
S.D. SOCKETS
S.D. GRILL
S.D. ICE MAKER
S.D. FRIDGE
JACUZZI
EXTERNAL ON
230VAC-50HZ EXTERNAL SUPPLIES
1054QAB2
1054QAB3
1054QAB4
1055QAB1
1055QAB2
1055QAB3
1055QAB4
1056QAB1
1056QAB2
1056QAB3
1056QAB4
1057QAB1

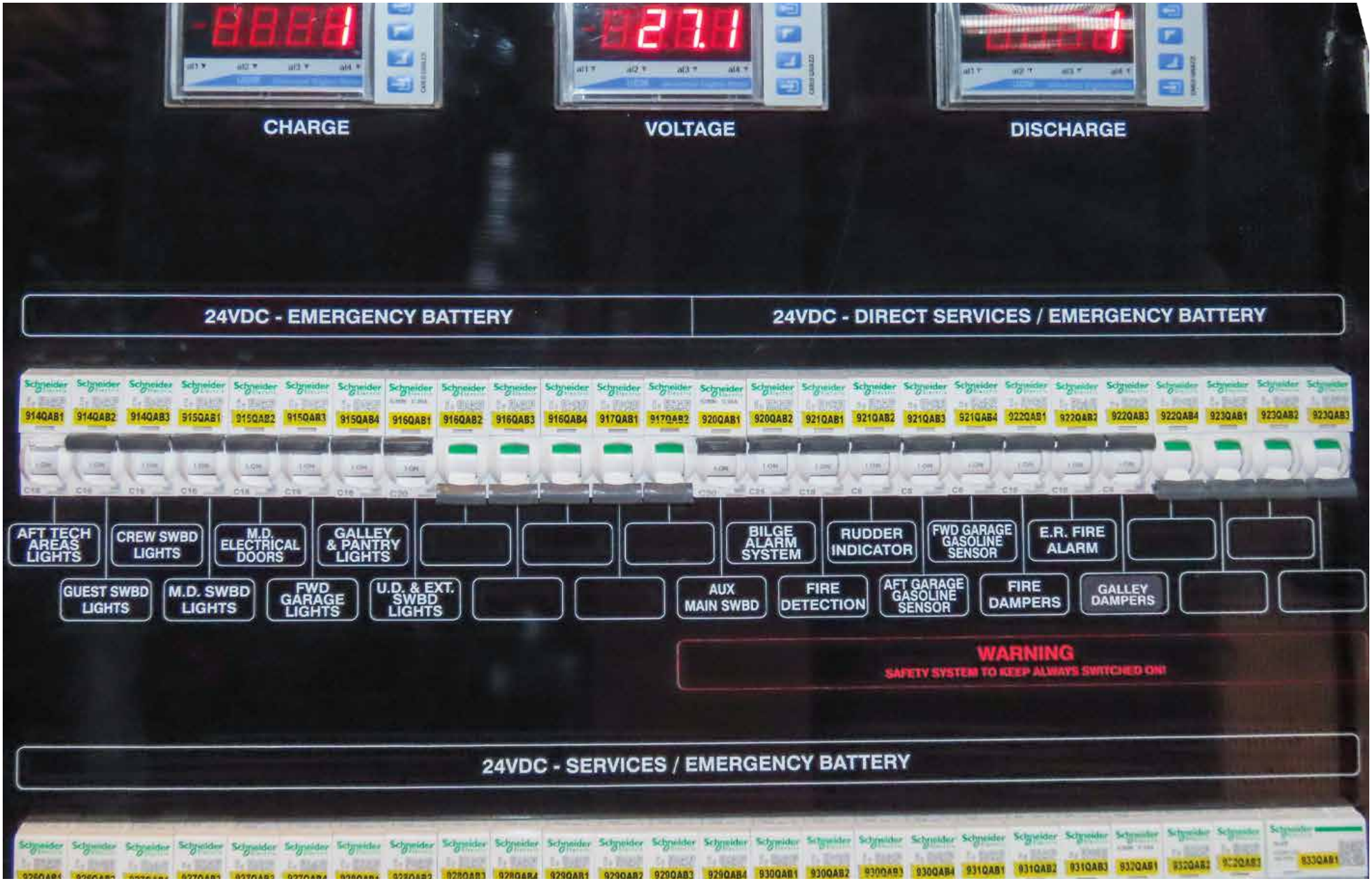

S.D. LIGHTS
S.D. SOCKETS
S.D. GRILL
S.D. ICE MAKER
S.D. FRIDGE
JACUZZI
EXTERNAL ON
230VAC-50HZ
EXTERNAL SUPPLIES
1054QAB2
1054QAB3
1054QAB4
1055QAB1
1055QAB2
1055QAB3
1055QAB4
1056QAB1
1056QAB2
1056QAB3
1056QAB4
1057QAB1
M.D. LIGHTS
AFT M.D. SOCKETS
AFT M.D. FRIDGE
U.D. LIGHTS
FWD SOCKETS
AFT U.D. SOCKETS
AFT U.D. ICE MAKER
AFT U.D. FRIDGE

B. On-board synoptic.

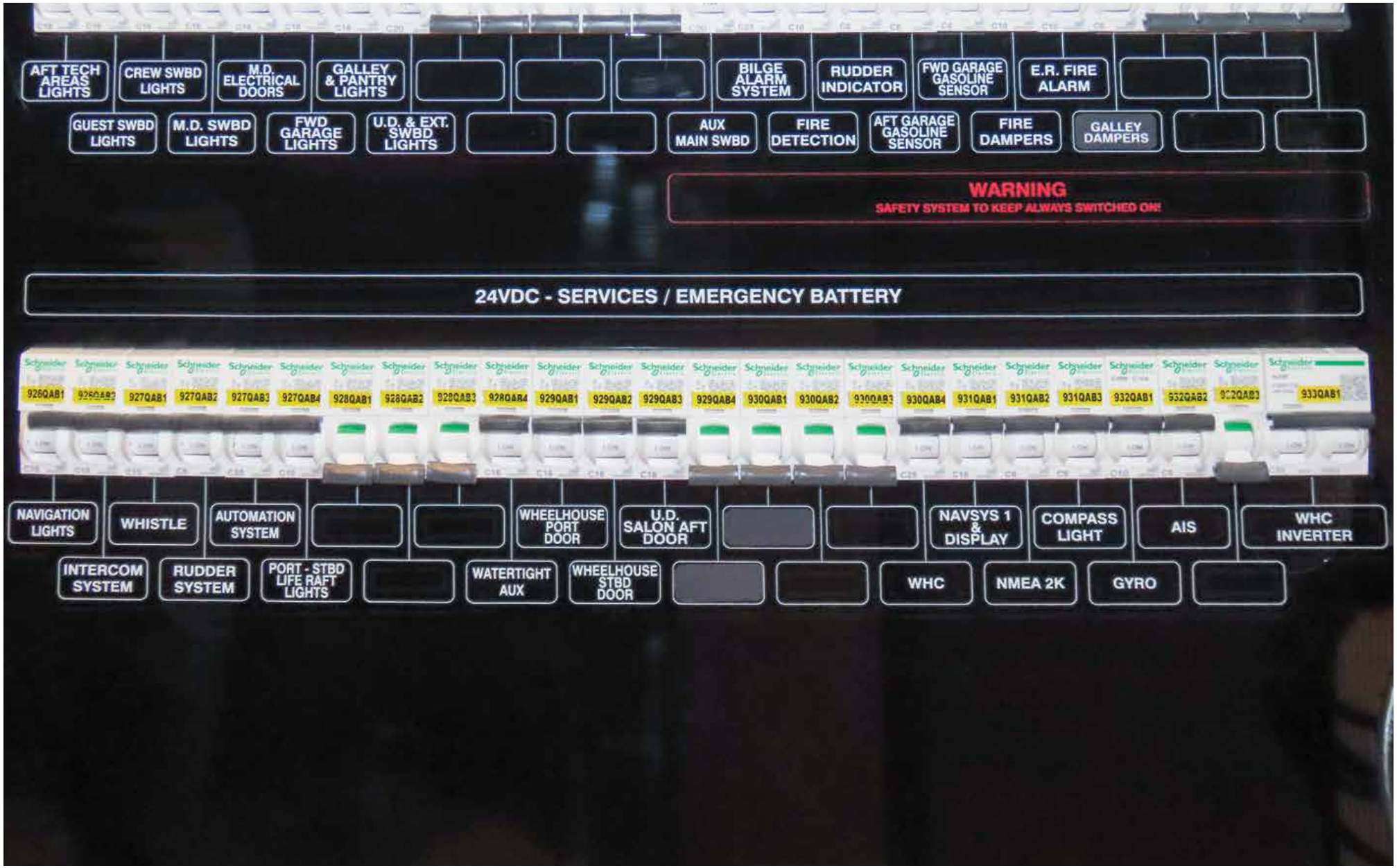

NAVIGATION LIGHTS
FAULT
1 0 2
MASTHEAD
PORT
STBD
STERN
ANCHOR
HIGH PORT
HIGH STBD
LOW PORT
LOW STBD
N.U.C.
BUZZER
ACK
DIMMER
CONTROLLER FAULT
DOORS
GALLEY
CLOSE
WATERTIGHT
OPEN
CLOSE
POWER FAILURE
DRIVE FAILURE
LOCAL CONTROL
CLOSE DOOR
ANCHOR
N.U.C.
MASTHEAD
STERN
PORT SIDE
STBD SIDE
PORT STBD
AFT
GARAGE
E.R.
PORT STBD
E.C.R.
PORT STBD
FIN
PORT STBD
VIP
PORT STBD
GUEST
PORT STBD
GUEST
CENTER CREW STAIRS
BOW THRUSTER COMPARTMENT
CHAIN LOCKER
BILGE ALARMS


E.R.
PORT
STBD
E.C.R.
PORT
STBD
FIN
PORT
STBD
VIP
PORT
STBD
GUEST
PORT
STBD
GUEST
CENTER
CREW
STAIRS
BOW
COM
BILGE ALARMS
BUZZER
ACK
HIGH LEVEL

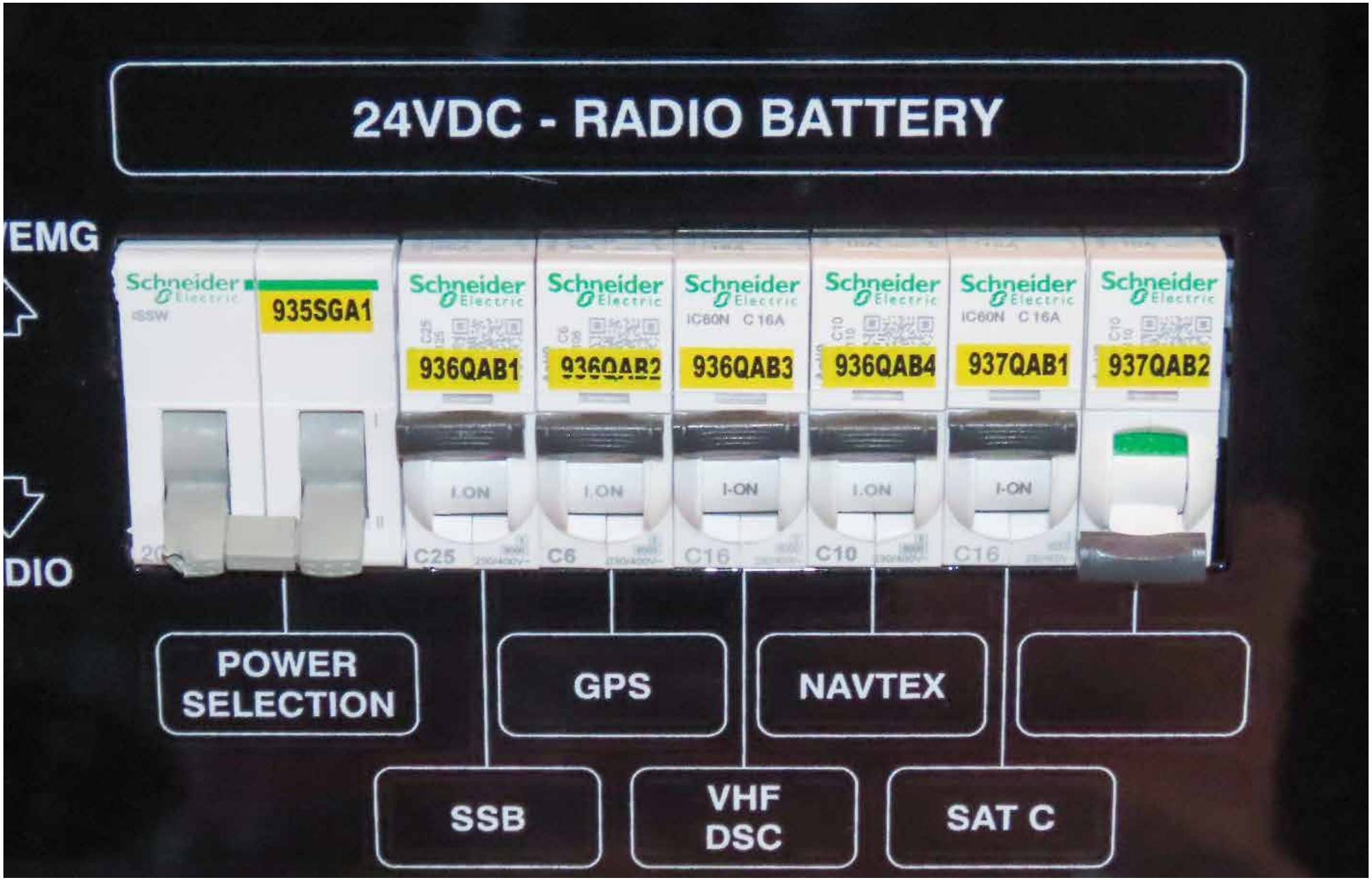
C. Magneto-thermal circuit breakers and emergency battery gauges.

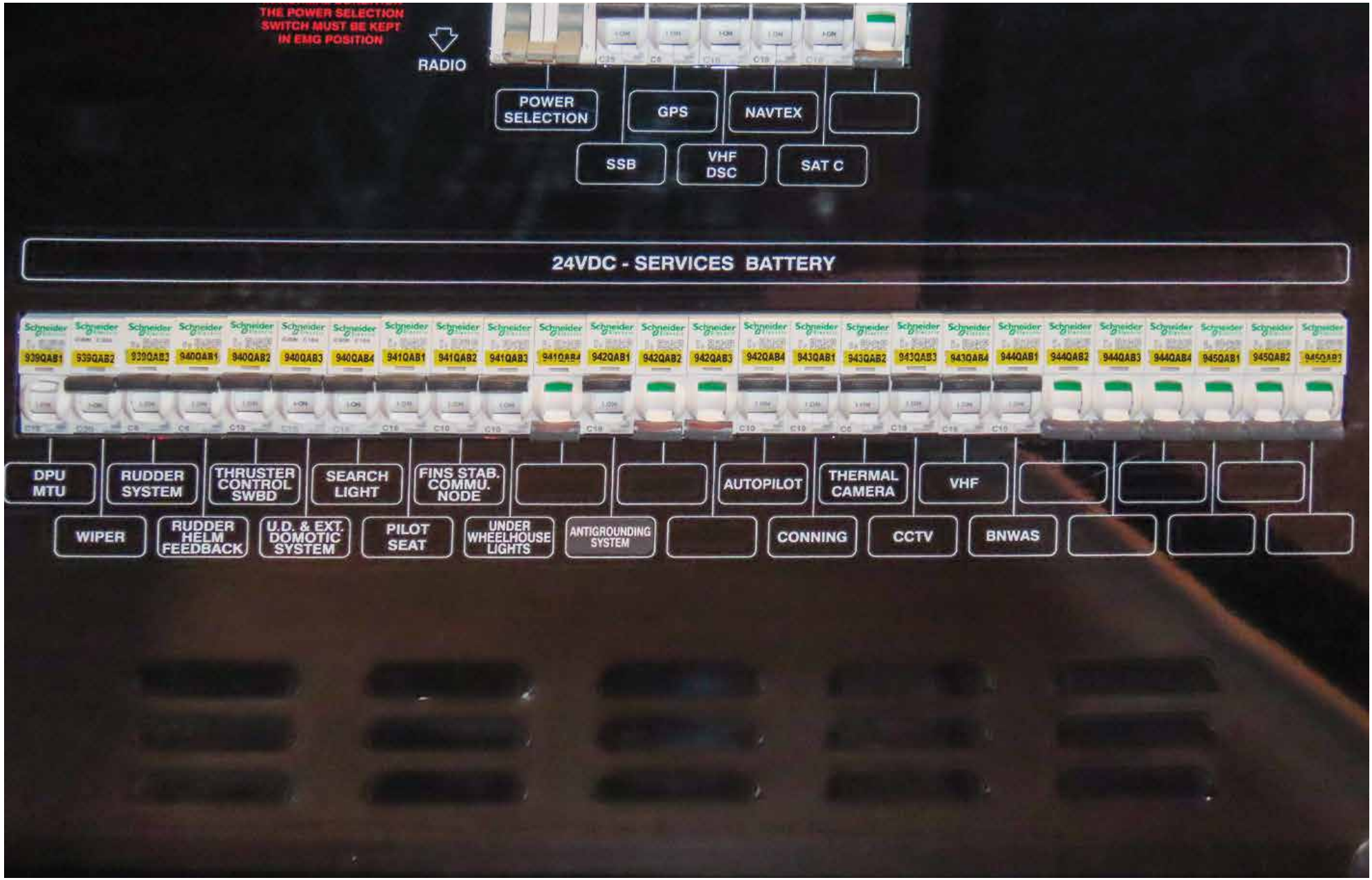

CHARGE
VOLTAGE
DISCHARGE
24VDC - EMERGENCY BATTERY
24VDC - DIRECT SERVICES / EMERGENCY BATTERY
914QAB1
914QAB2
914QAB3
915QAB1
915QAB2
915QAB3
915QAB4
916QAB1
916QAB2
916QAB3
916QAB4
917QAB1
917QAB2
920QAB1
920QAB2
921QAB1
921QAB2
921QAB3
921QAB4
922QAB1
922QAB2
922QAB3
922QAB4
923QAB1
923QAB2
923QAB3
AFT TECH AREAS LIGHTS
CREW SWBD LIGHTS
M.D. ELECTRICAL DOORS
GALLEY & PANTRY LIGHTS
BILGE ALARM SYSTEM
RUDDER INDICATOR
FWD GARAGE GASOLINE SENSOR
E.R. FIRE ALARM
GUEST SWBD LIGHTS
M.D. SWBD LIGHTS
FWD GARAGE LIGHTS
U.D. & EXT. SWBD LIGHTS
AUX MAIN SWBD
FIRE DETECTION
AFT GARAGE GASOLINE SENSOR
FIRE DAMPERS
GALLEY DAMPERS
WARNING
SAFETY SYSTEM TO KEEP ALWAYS SWITCHED ON!
24VDC - SERVICES / EMERGENCY BATTERY
933QAB1

B. Battery state-of-charge gauges



D. Magneto-thermal circuit breakers and radio battery state-of-charge meters.


24VDC - RADIO BATTERY
EMG
DIO
Schneider Electric
935SGA1
936QAB1
936QAB2
936QAB3
936QAB4
937QAB1
937QAB2
IC60N C 16A
C25
C6
C16
C10
C16
POWER SELECTION
GPS
NAVTEX
SSB
VHF DSC
SAT C


THE POWER SELECTION SWITCH MUST BE KEPT IN EMG POSITION
RADIO
POWER SELECTION
GPS
NAVTEX
SSB
VHF DSC
SAT C
24VDC - SERVICES BATTERY
939QAB1
939QAB2
939QAB3
940QAB1
940QAB2
940QAB3
940QAB4
941QAB1
941QAB2
941QAB3
941QAB4
942QAB1
942QAB2
942QAB3
942QAB4
943QAB1
943QAB2
943QAB3
943QAB4
944QAB1
944QAB2
944QAB3
944QAB4
945QAB1
945QAB2
945QAB3
DPU MTU
RUDDER SYSTEM
THRUSTER CONTROL SWBD
SEARCH LIGHT
FINS STAB. COMMU. NODE
AUTOPILOT
THERMAL CAMERA
VHF
WIPER
RUDDER HELM FEEDBACK
U.D. & EXT. DOMOTIC SYSTEM
PILOT SEAT
UNDER WHEELHOUSE LIGHTS
ANTIGROUNDING SYSTEM
CONNING
CCTV
BNWAS

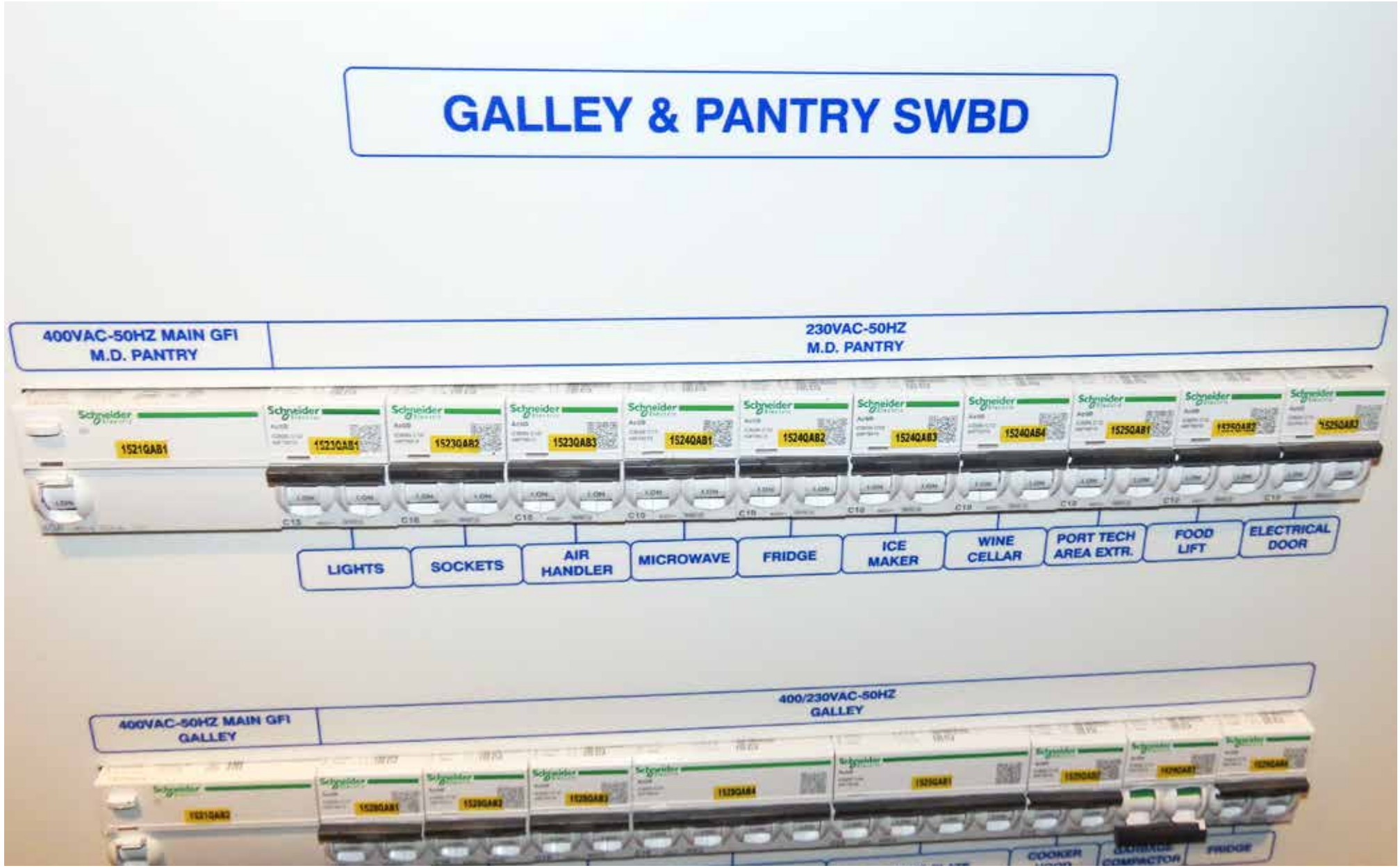
GALLEY AND PANTRY ELECTRICAL PANEL:
The electrical panel is located in the technical room on the port side of the main deck.

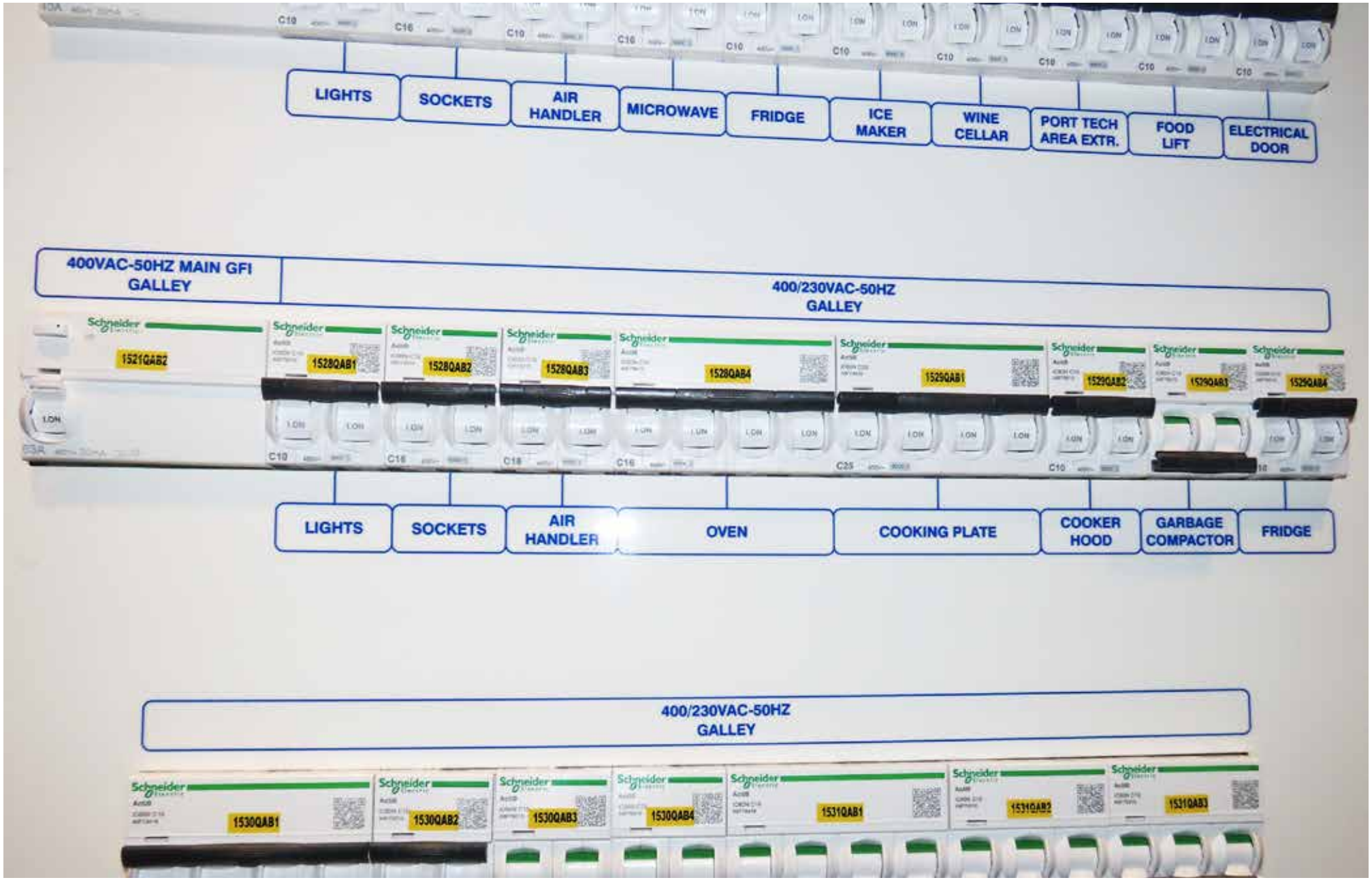
To simplify panel descriptions, the main sections are as follows:

A. Magneto-thermal circuit breakers to protect on-board uses.

> **NOTE**
> For a detailed description refer to the electric installation manual.

A. Magneto-thermal circuit breakers to protect on-board uses.




LIGHTS
SOCKETS
AIR HANDLER
MICROWAVE
FRIDGE
ICE MAKER
WINE CELLAR
PORT TECH AREA EXTR.
FOOD LIFT
ELECTRICAL DOOR
400VAC-50HZ MAIN GFI GALLEY
400/230VAC-50HZ GALLEY
1521QAB2
1528QAB1
1528QAB2
1528QAB3
1528QAB4
1529QAB1
1529QAB2
1529QAB3
1529QAB4
LIGHTS
SOCKETS
AIR HANDLER
OVEN
COOKING PLATE
COOKER HOOD
GARBAGE COMPACTOR
FRIDGE
400/230VAC-50HZ GALLEY
1530QAB1
1530QAB2
1530QAB3
1530QAB4
1531QAB1
1531QAB2
1531QAB3


LIGHTS
SOCKETS
AIR HANDLER
OVEN
COOKING PLATE
COOKER HOOD
GARBAGE COMPACTOR
400/230VAC-50HZ
GALLEY
1530QAB1
1530QAB2
1530QAB3
1530QAB4
1531QAB1
1531QAB2
1531QAB3
C16
C10
DISHWASHER
FREEZER
24VDC SERVICES
1534QAB3
1534QAB4

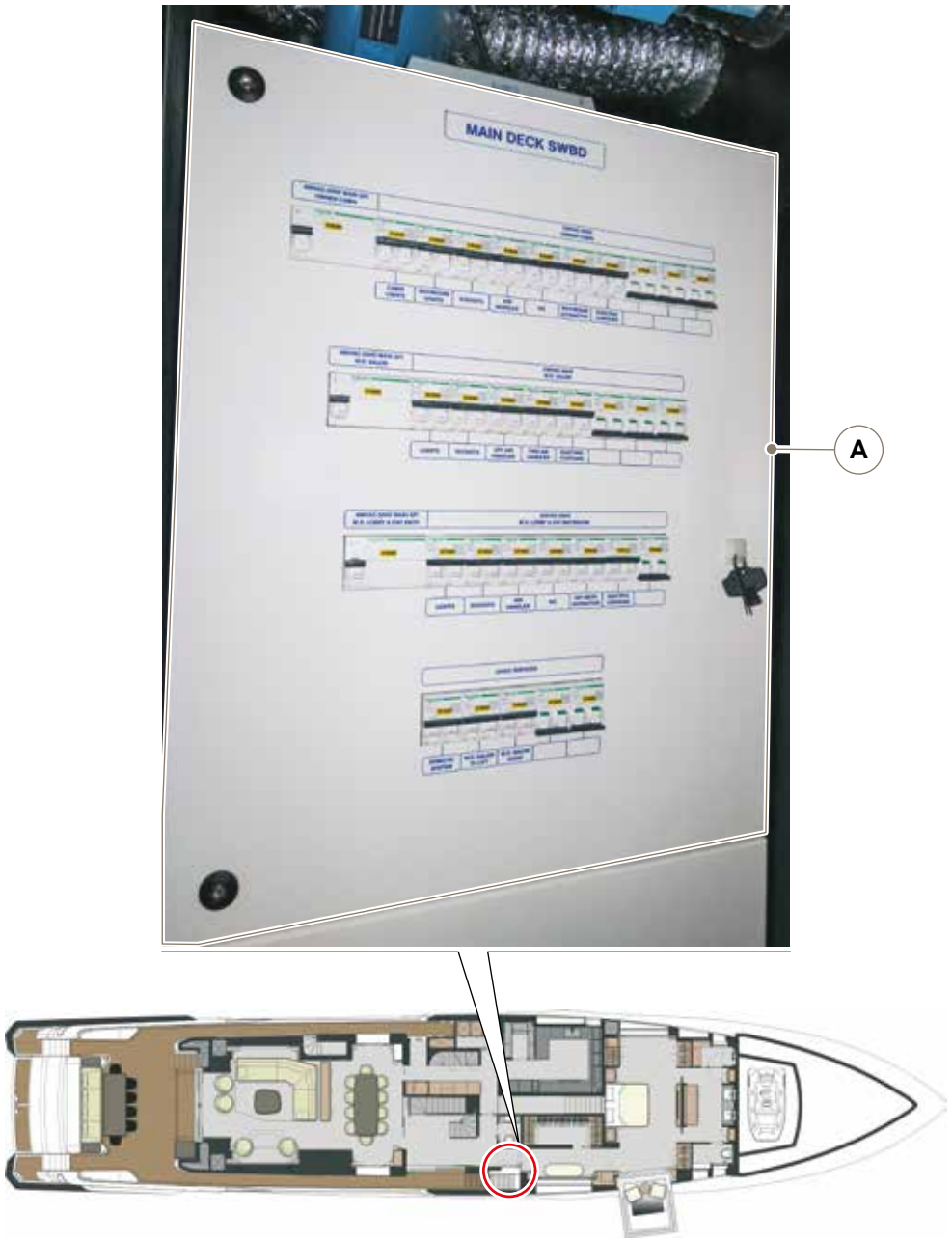

24VDC SERVICES
Schneider Electric
Acti9
iC60N C10
A9F79210
1534QAB1
1534QAB2
1534QAB3
1534QAB4
I.ON
C10
400V~
DOMOTIC SYSTEM
CREW CALL SYSTEM

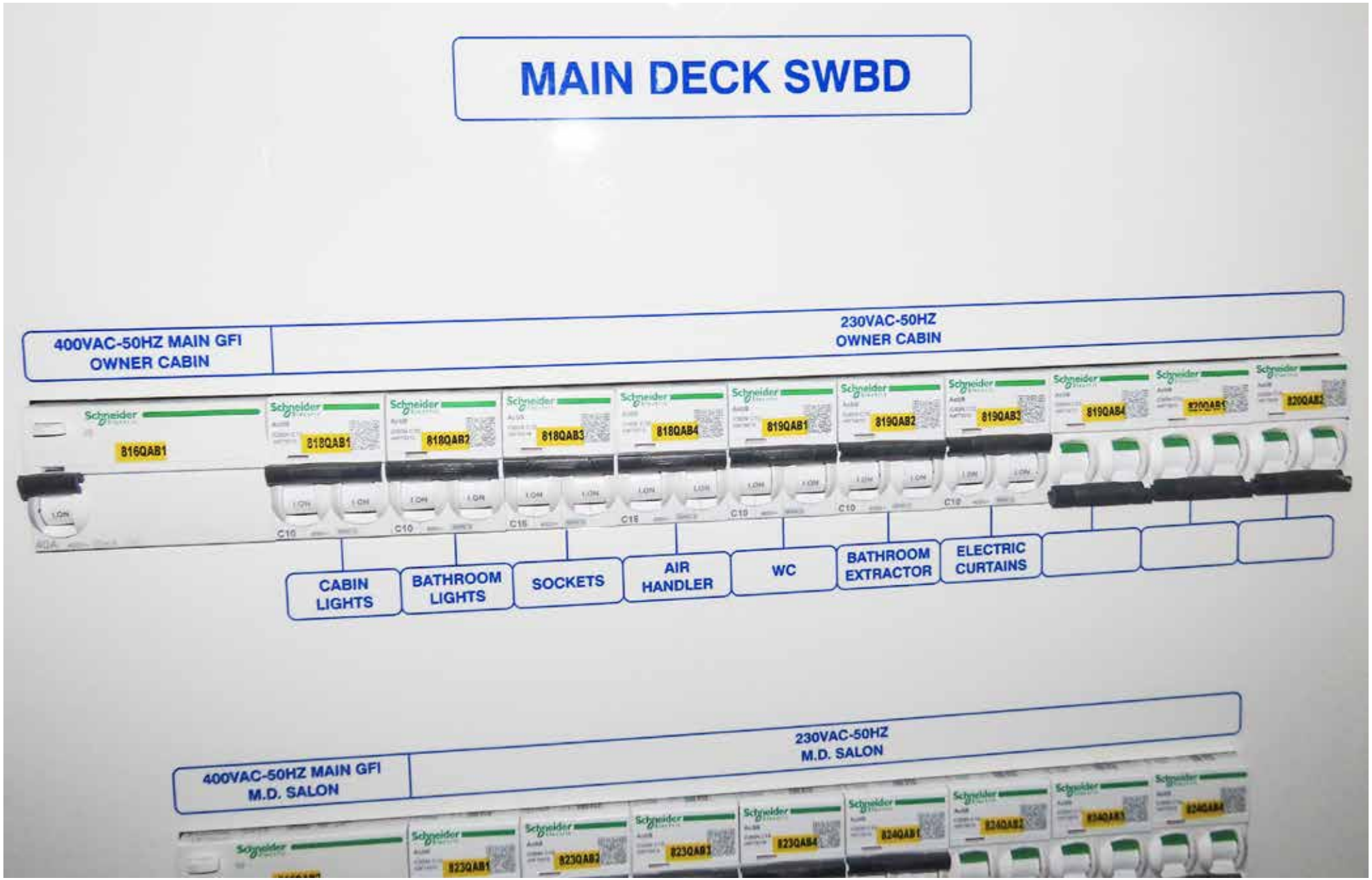
MAIN DECK ELECTRICAL PANEL:
The electrical panel is located in the technical room on the starboard side of the main deck.

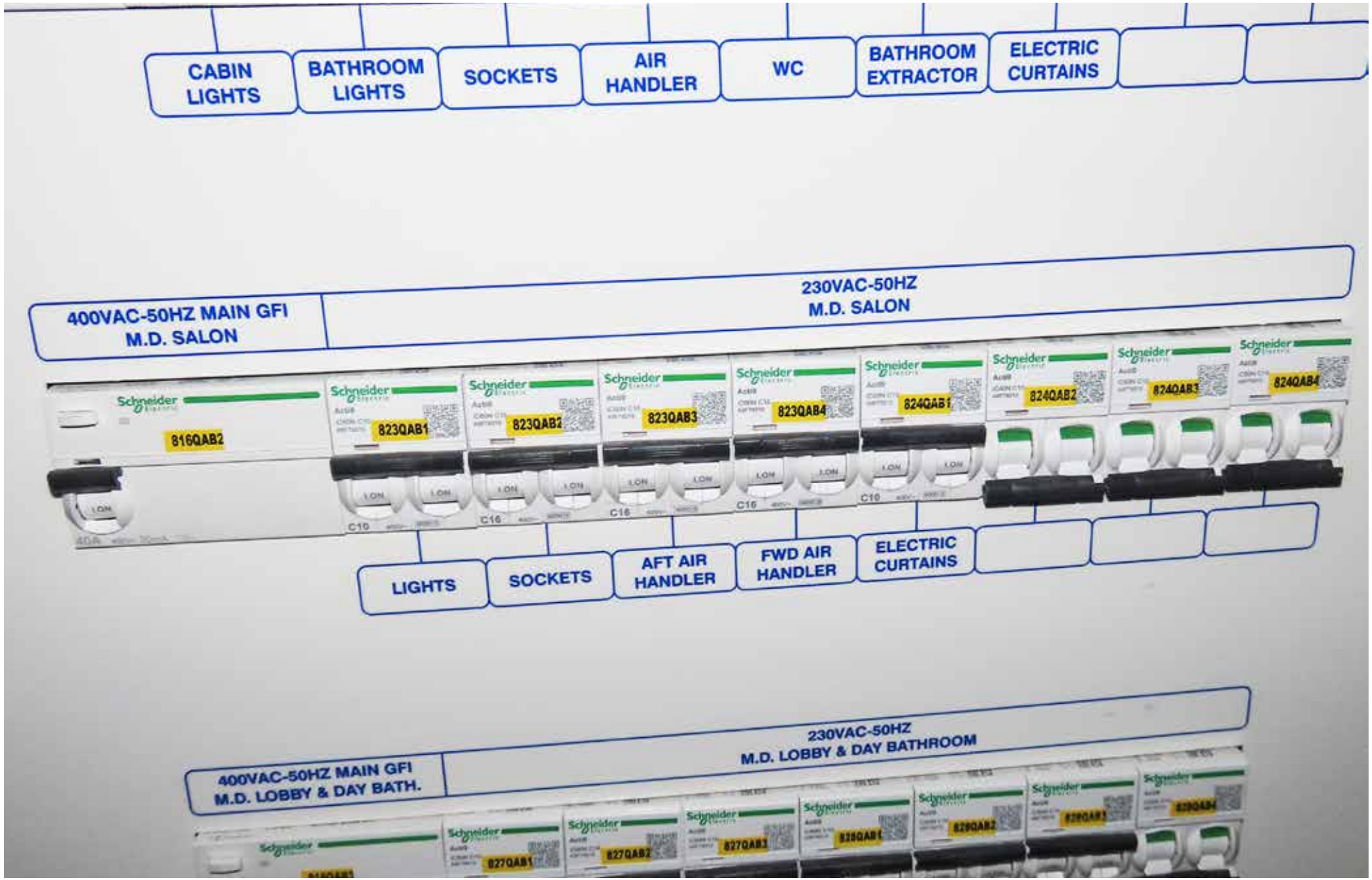
To simplify panel descriptions, the main sections are as follows:

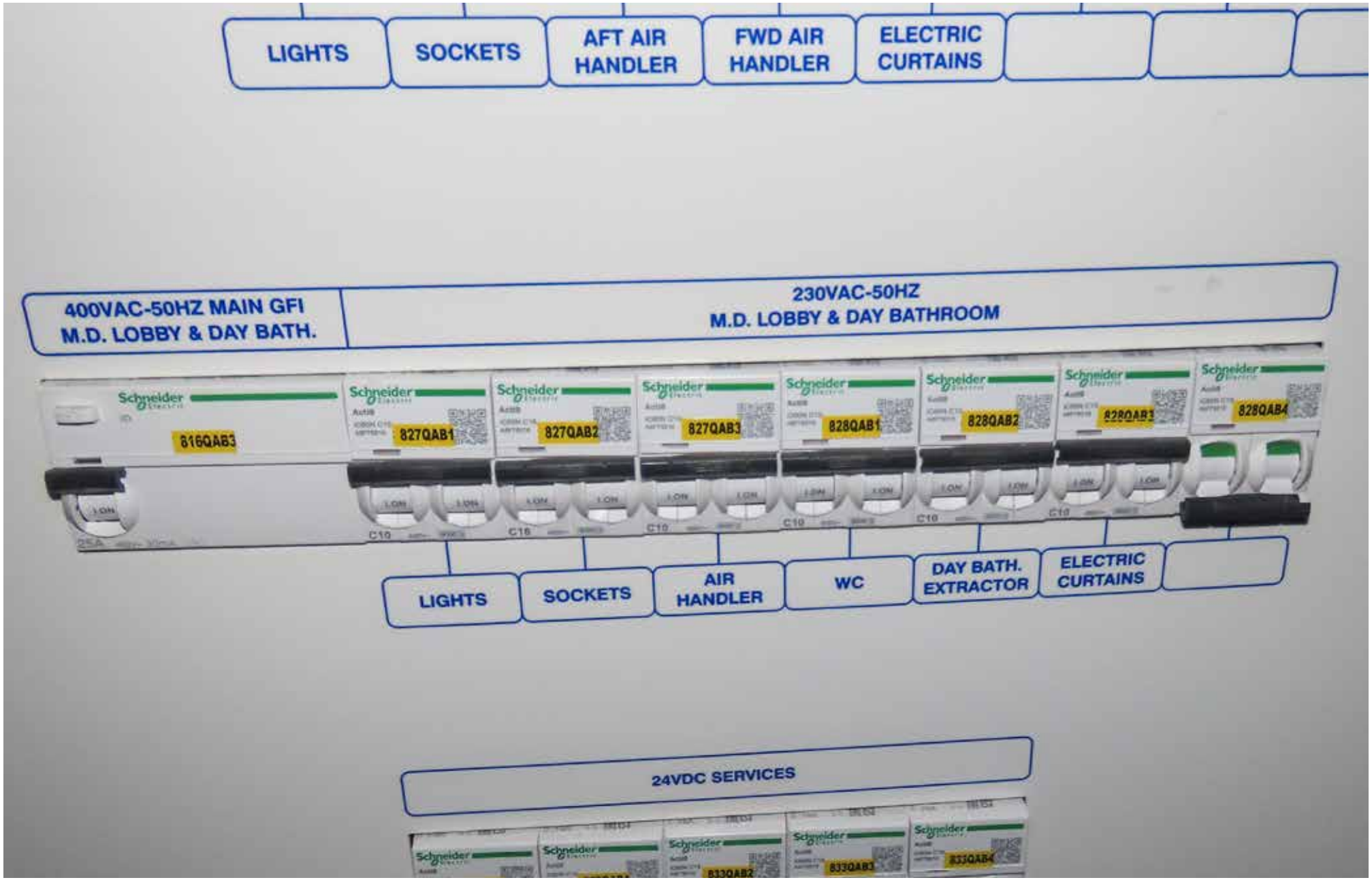
A. Magneto-thermal circuit breakers to protect on-board uses.

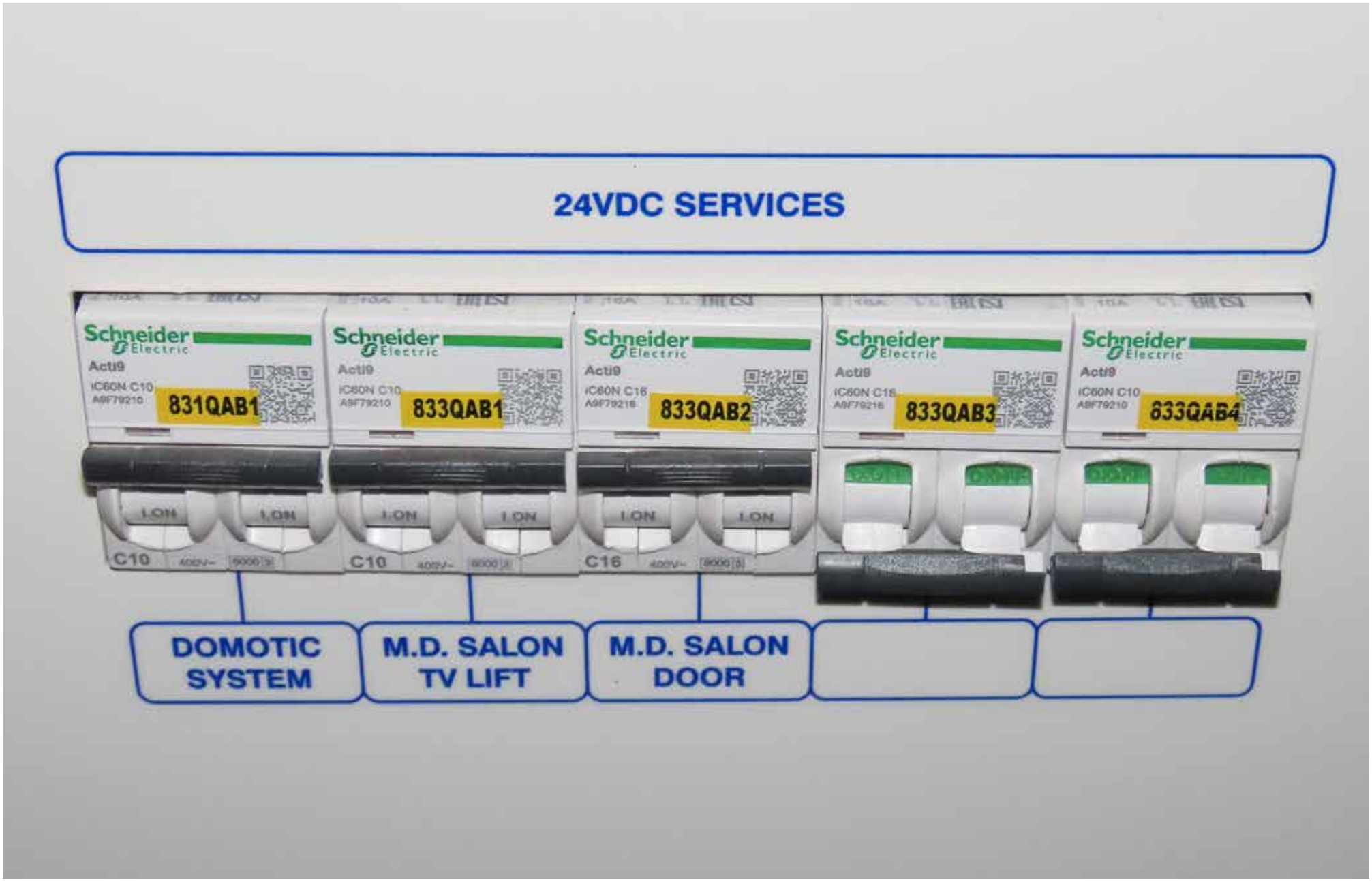
NOTE
For a detailed description refer to the electric installation manual.




MAIN DECK SWBD
400VAC-50HZ MAIN GFI
OWNER CABIN
230VAC-50HZ
OWNER CABIN
816QAB1
818QAB1
818QAB2
818QAB3
818QAB4
819QAB1
819QAB2
819QAB3
819QAB4
820QAB1
820QAB2
CABIN LIGHTS
BATHROOM LIGHTS
SOCKETS
AIR HANDLER
WC
BATHROOM EXTRACTOR
ELECTRIC CURTAINS
400VAC-50HZ MAIN GFI
M.D. SALON
230VAC-50HZ
M.D. SALON
823QAB1
823QAB2
823QAB3
823QAB4
824QAB1
824QAB2
824QAB3
824QAB4


CABIN LIGHTS
BATHROOM LIGHTS
SOCKETS
AIR HANDLER
WC
BATHROOM EXTRACTOR
ELECTRIC CURTAINS
400VAC-50HZ MAIN GFI M.D. SALON
230VAC-50HZ M.D. SALON
816QAB2
823QAB1
823QAB2
823QAB3
823QAB4
824QAB1
824QAB2
824QAB3
824QAB4
LIGHTS
SOCKETS
AFT AIR HANDLER
FWD AIR HANDLER
ELECTRIC CURTAINS
400VAC-50HZ MAIN GFI M.D. LOBBY & DAY BATH.
230VAC-50HZ M.D. LOBBY & DAY BATHROOM
827QAB1
827QAB2
827QAB3
828QAB1
828QAB2


LIGHTS
SOCKETS
AFT AIR HANDLER
FWD AIR HANDLER
ELECTRIC CURTAINS
400VAC-50HZ MAIN GFI
M.D. LOBBY & DAY BATH.
230VAC-50HZ
M.D. LOBBY & DAY BATHROOM
816QAB3
827QAB1
827QAB2
827QAB3
828QAB1
828QAB2
828QAB3
828QAB4
LIGHTS
SOCKETS
AIR HANDLER
WC
DAY BATH. EXTRACTOR
ELECTRIC CURTAINS
24VDC SERVICES


24VDC SERVICES
Schneider Electric
Acti9
iC60N C10
A9F79210
831QAB1
Schneider Electric
Acti9
iC60N C10
A9F79210
833QAB1
Schneider Electric
Acti9
iC60N C16
A9F79216
833QAB2
Schneider Electric
Acti9
iC60N C16
A9F79216
833QAB3
Schneider Electric
Acti9
iC60N C10
A9F79210
833QAB4
I.ON
I.ON
I.ON
I.ON
I.ON
I.ON
C10
C10
C16
DOMOTIC SYSTEM
M.D. SALON TV LIFT
M.D. SALON DOOR

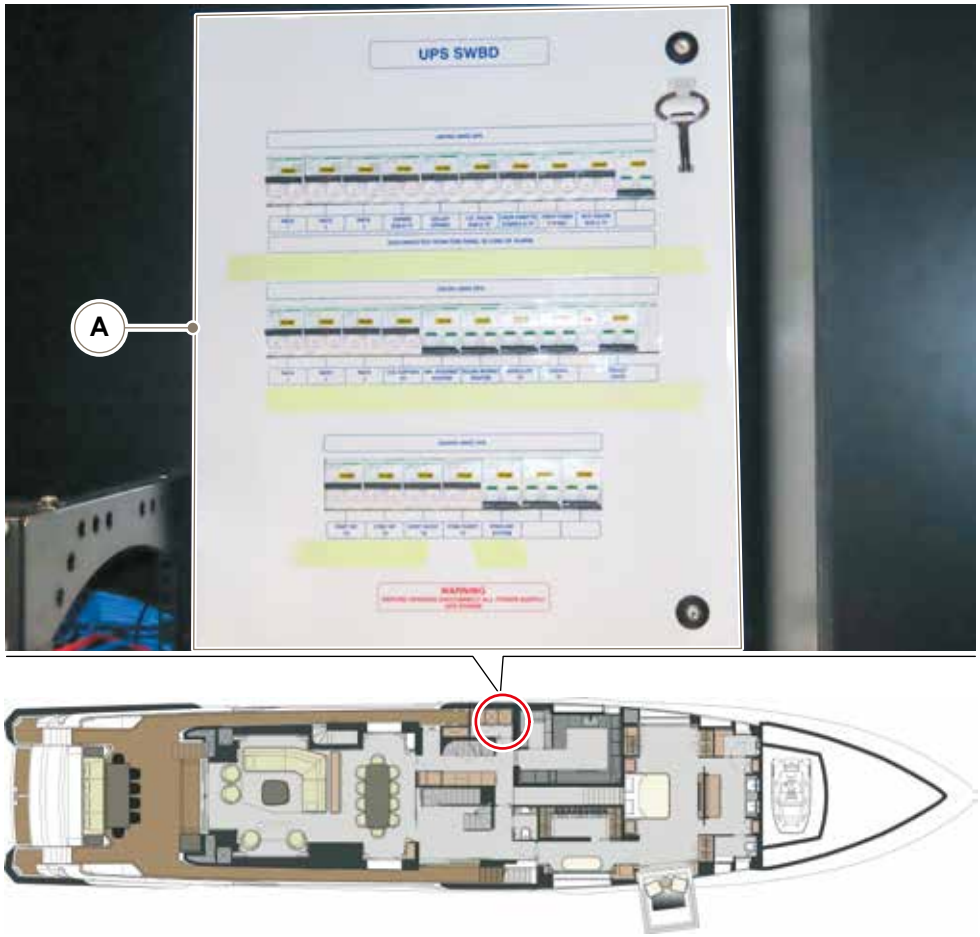
UPS ELECTRICAL PANEL:

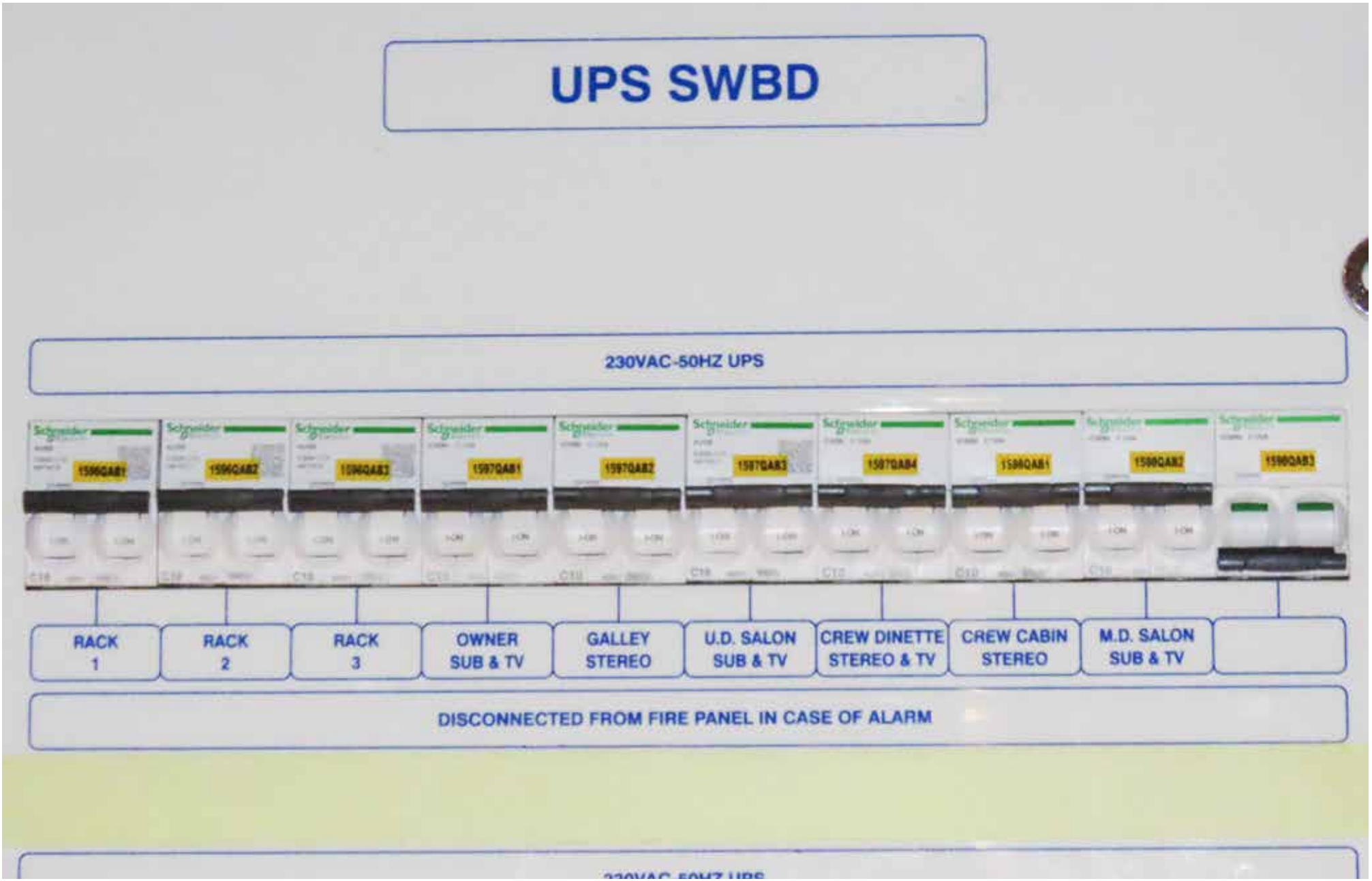
The electrical panel is located in the technical room on the port side of the main deck.

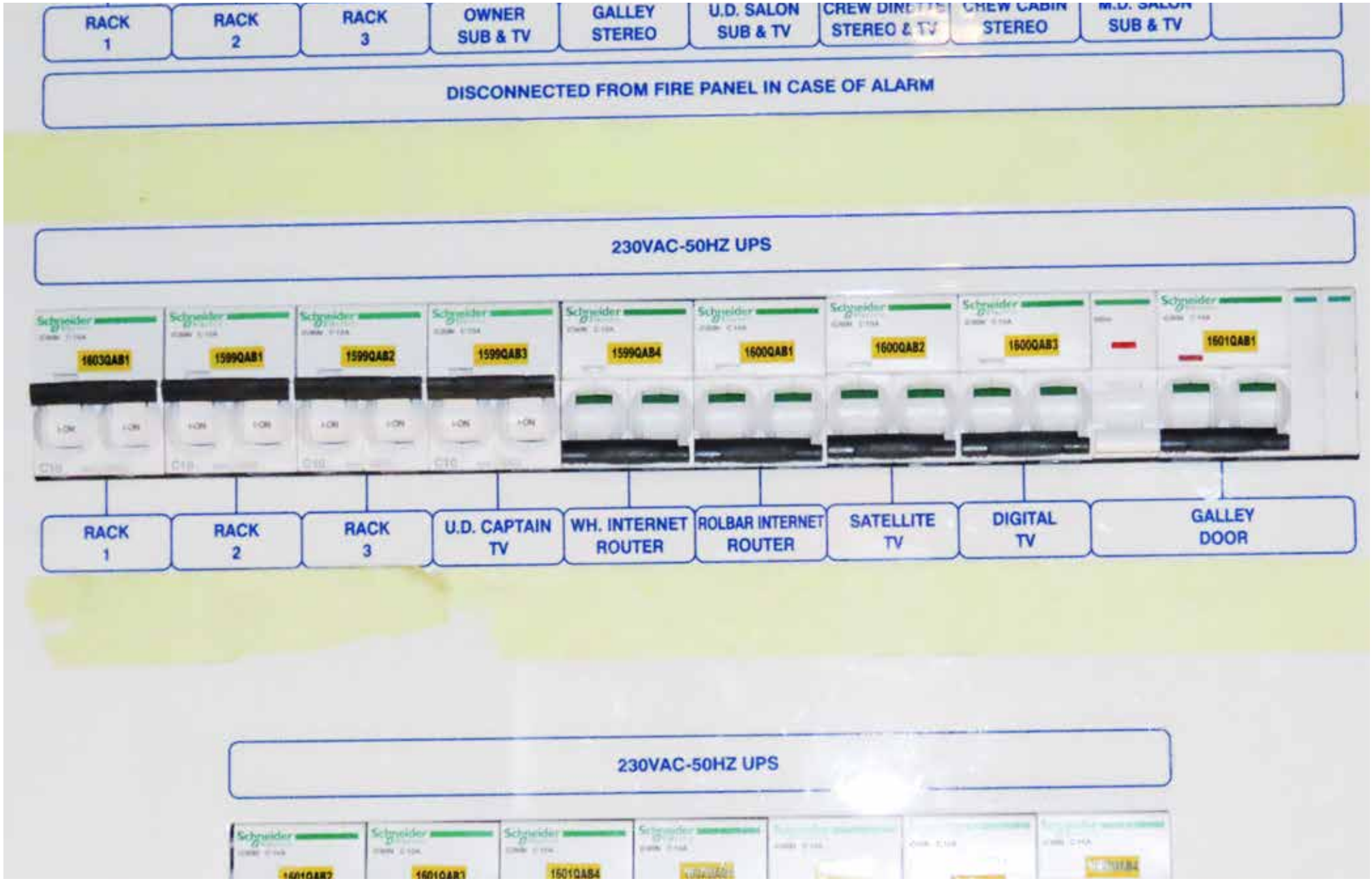
To simplify panel descriptions, the main sections are as follows:

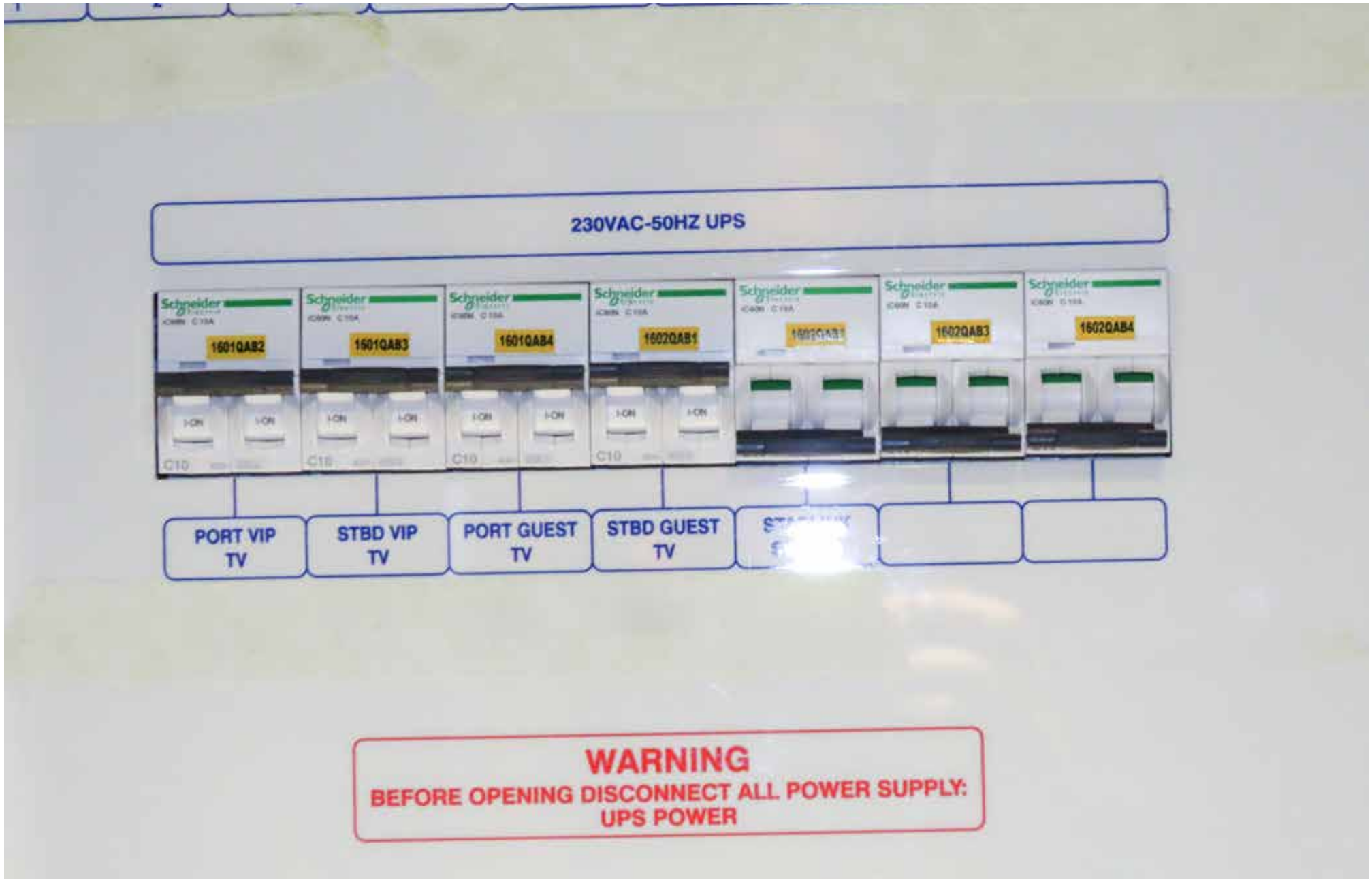
A. Magneto-thermal circuit breakers to protect on-board uses.

> **NOTE**
> For a detailed description refer to the electric installation manual.




UPS SWBD
230VAC-50HZ UPS
RACK 1
RACK 2
RACK 3
OWNER SUB & TV
GALLEY STEREO
U.D. SALON SUB & TV
CREW DINETTE STEREO & TV
CREW CABIN STEREO
M.D. SALON SUB & TV
DISCONNECTED FROM FIRE PANEL IN CASE OF ALARM


RACK 1
RACK 2
RACK 3
OWNER SUB & TV
GALLEY STEREO
U.D. SALON SUB & TV
CREW DINETTE STEREO & TV
CREW CABIN STEREO
M.D. SALON SUB & TV
DISCONNECTED FROM FIRE PANEL IN CASE OF ALARM
230VAC-50HZ UPS
1603QAB1
1599QAB1
1599QAB2
1599QAB3
1599QAB4
1600QAB1
1600QAB2
1600QAB3
1601QAB1
RACK 1
RACK 2
RACK 3
U.D. CAPTAIN TV
WH. INTERNET ROUTER
ROLBAR INTERNET ROUTER
SATELLITE TV
DIGITAL TV
GALLEY DOOR
230VAC-50HZ UPS

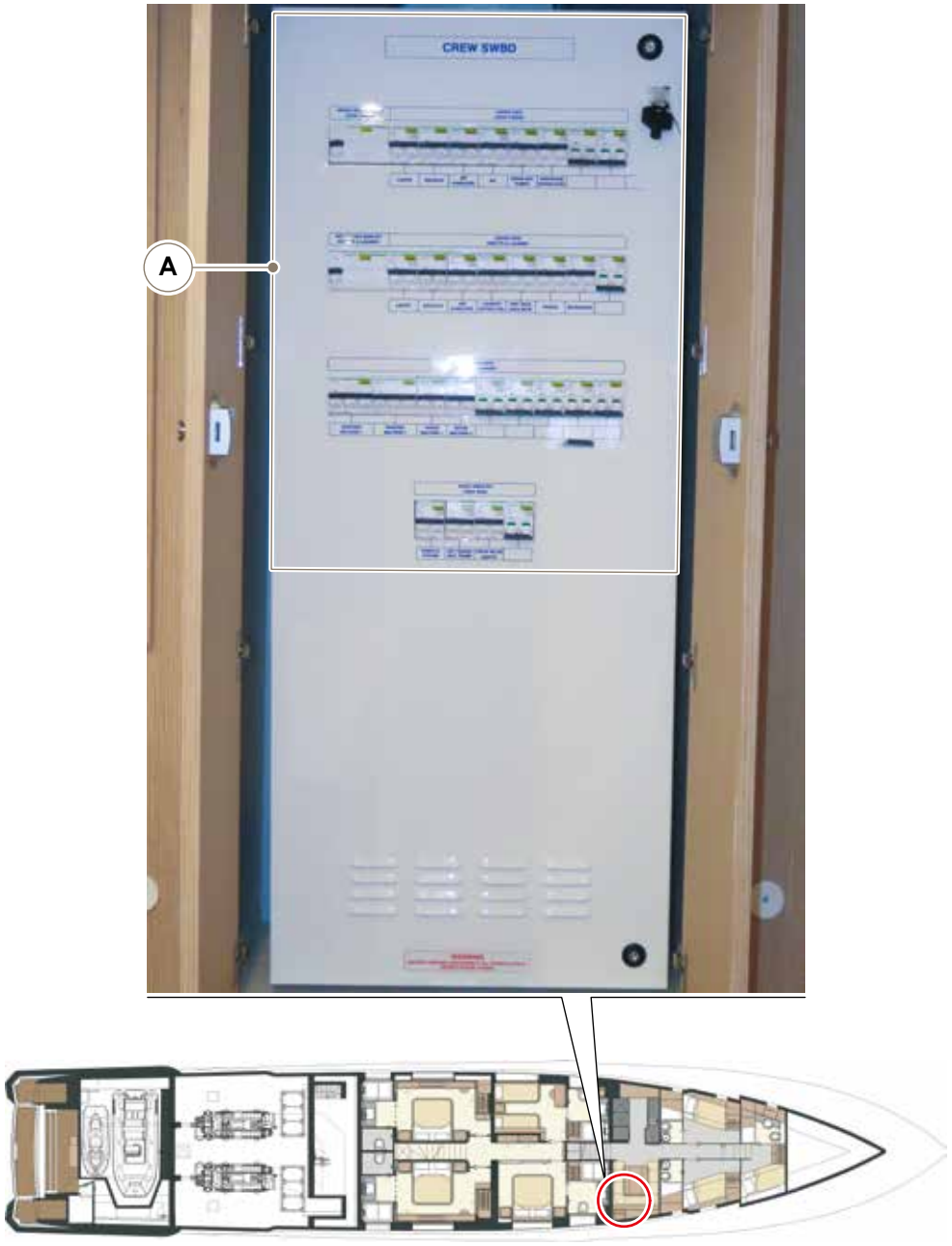

230VAC-50HZ UPS
1601QAB2
1601QAB3
1601QAB4
1602QAB1
1602QAB3
1602QAB4
PORT VIP TV
STBD VIP TV
PORT GUEST TV
STBD GUEST TV
WARNING
BEFORE OPENING DISCONNECT ALL POWER SUPPLY:
UPS POWER

CREW AREA LOWER DECK ELECTRICAL PANEL:
The electrical panel is located in the crew area on the starboard side..

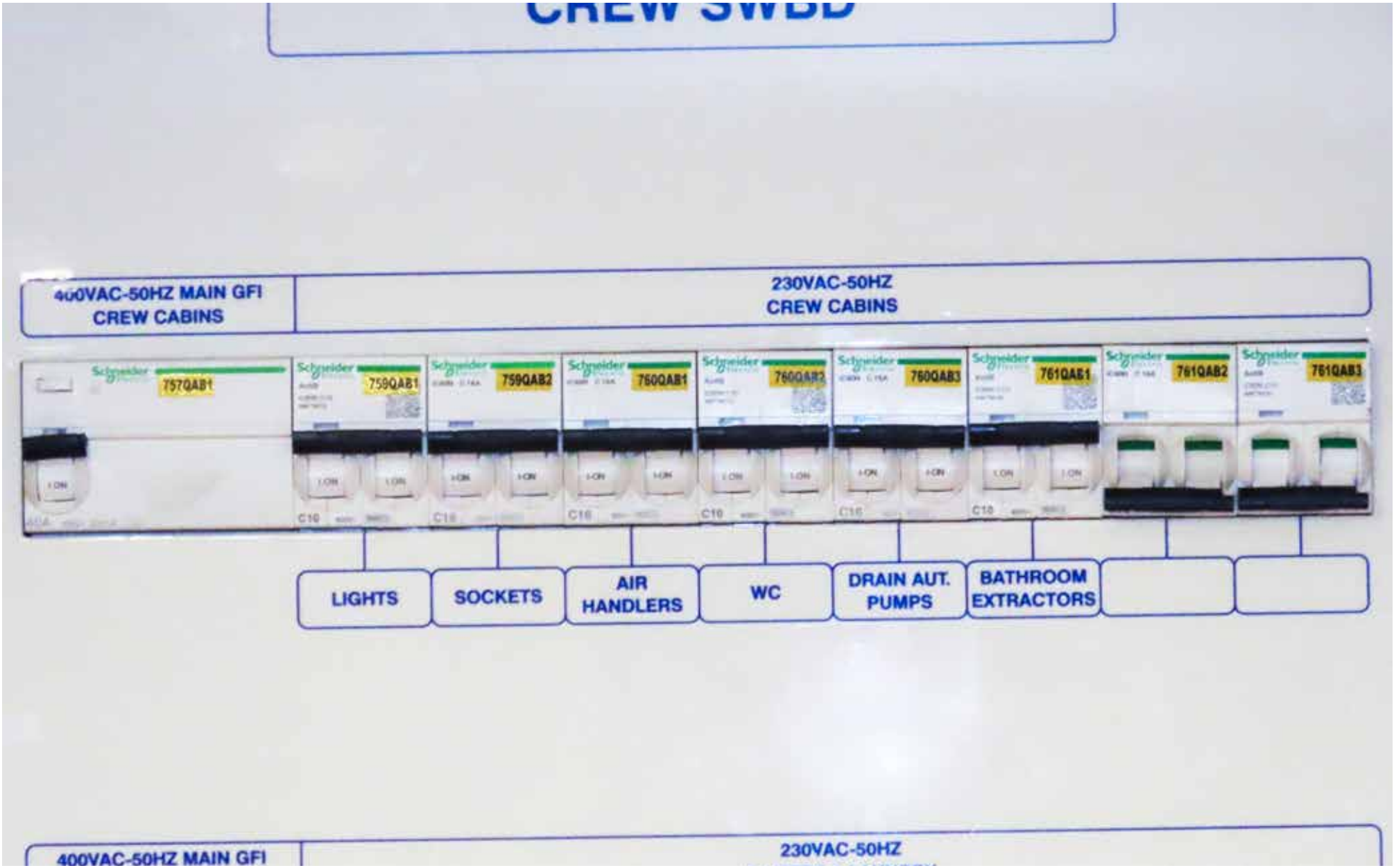
To simplify panel descriptions, the main sections are as follows:

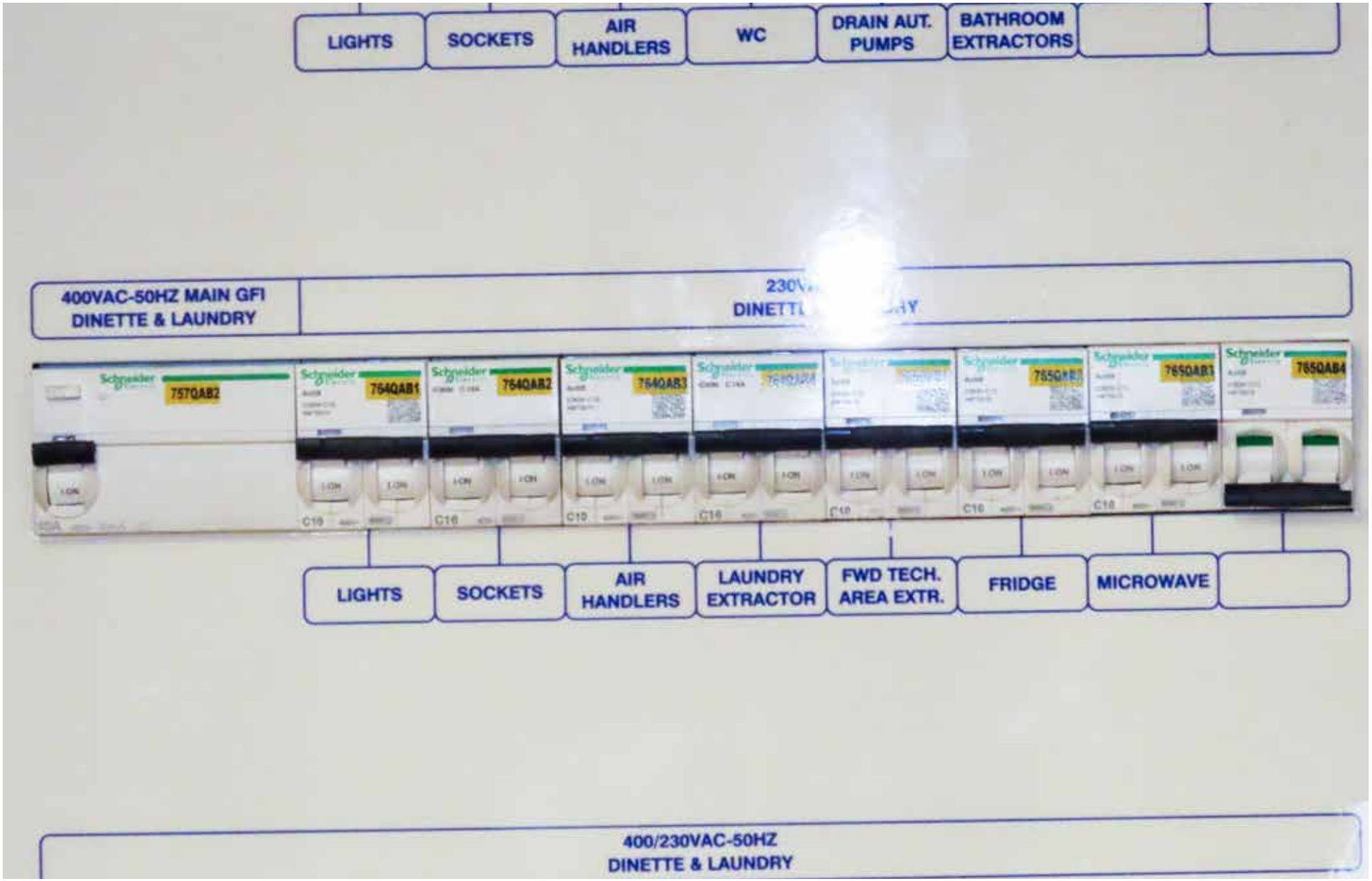
A. Magneto-thermal circuit breakers to protect on-board uses.

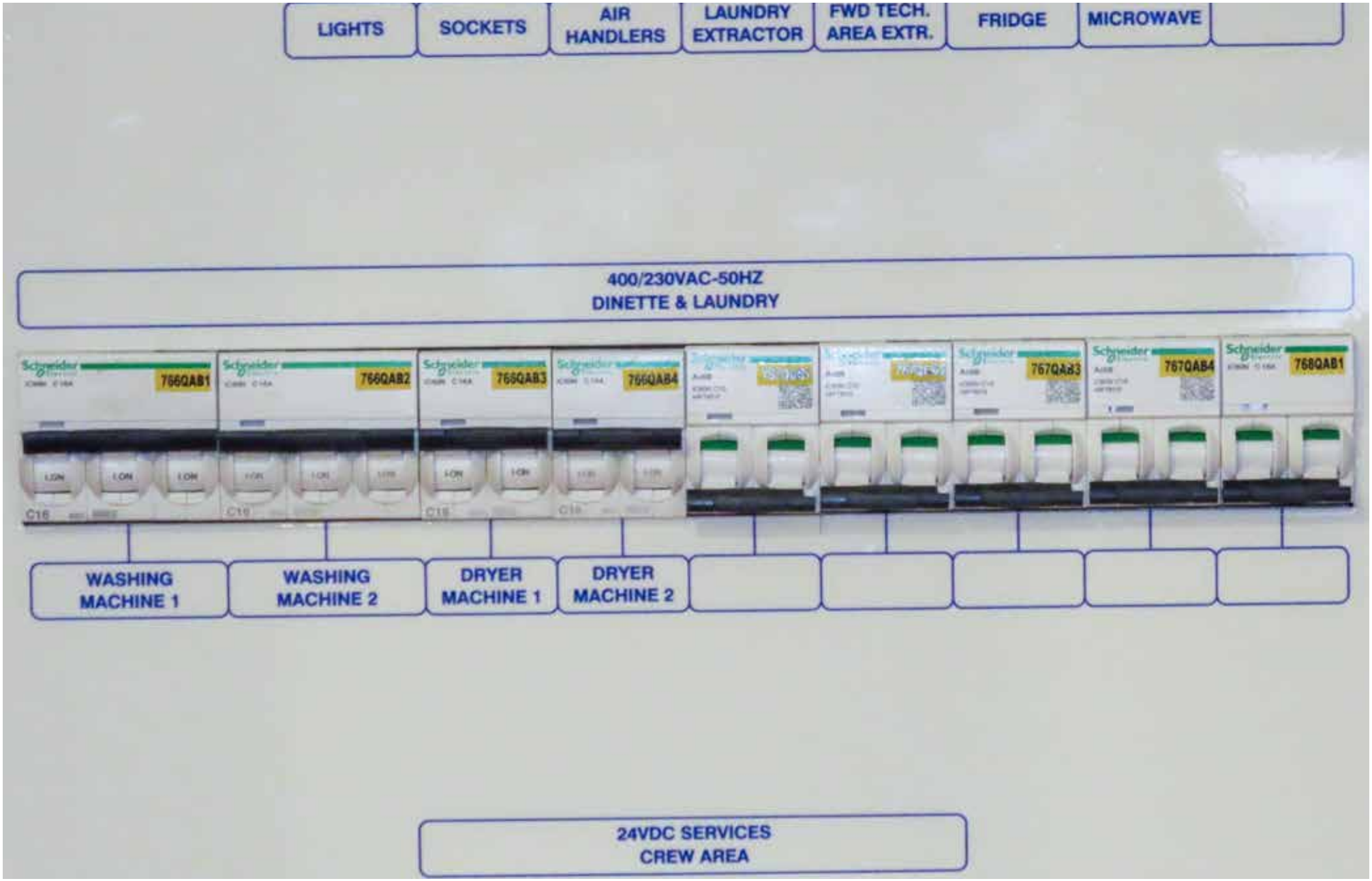
NOTE
For a detailed description refer to the electric installation manual.

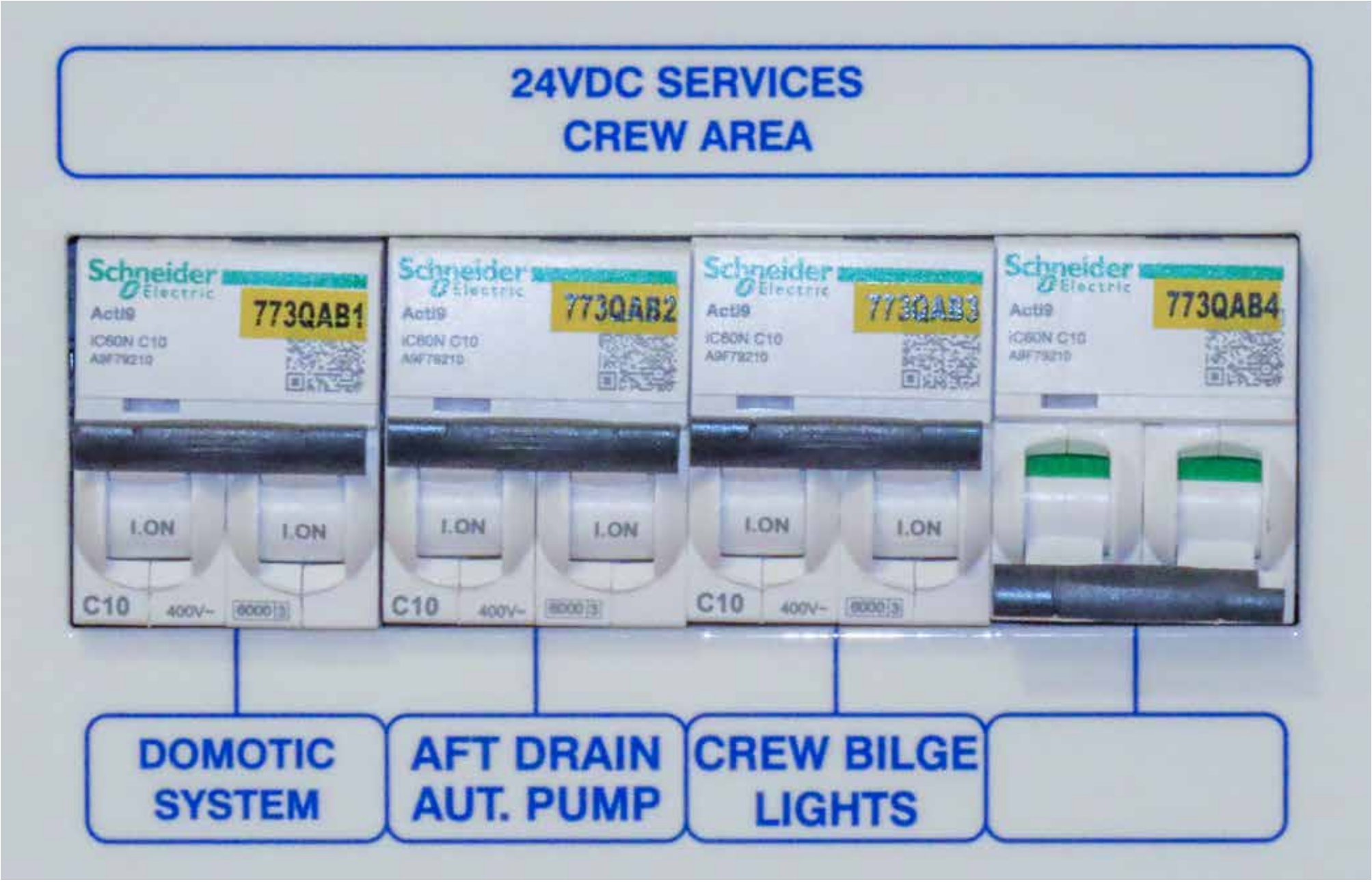


A. Magneto-thermal circuit breakers to protect on-board uses.




LIGHTS
SOCKETS
AIR HANDLERS
WC
DRAIN AUT. PUMPS
BATHROOM EXTRACTORS
400VAC-50HZ MAIN GFI
DINETTE & LAUNDRY
230V
DINETTE
757QAB2
764QAB1
764QAB2
764QAB3
765QAB3
765QAB4
LIGHTS
SOCKETS
AIR HANDLERS
LAUNDRY EXTRACTOR
FWD TECH. AREA EXTR.
FRIDGE
MICROWAVE
400/230VAC-50HZ
DINETTE & LAUNDRY


LIGHTS
SOCKETS
AIR HANDLERS
LAUNDRY EXTRACTOR
FWD TECH. AREA EXTR.
FRIDGE
MICROWAVE
400/230VAC-50HZ
DINETTE & LAUNDRY
766QAB1
766QAB2
766QAB3
766QAB4
767QAB3
767QAB4
768QAB1
C16
WASHING MACHINE 1
WASHING MACHINE 2
DRYER MACHINE 1
DRYER MACHINE 2
24VDC SERVICES
CREW AREA

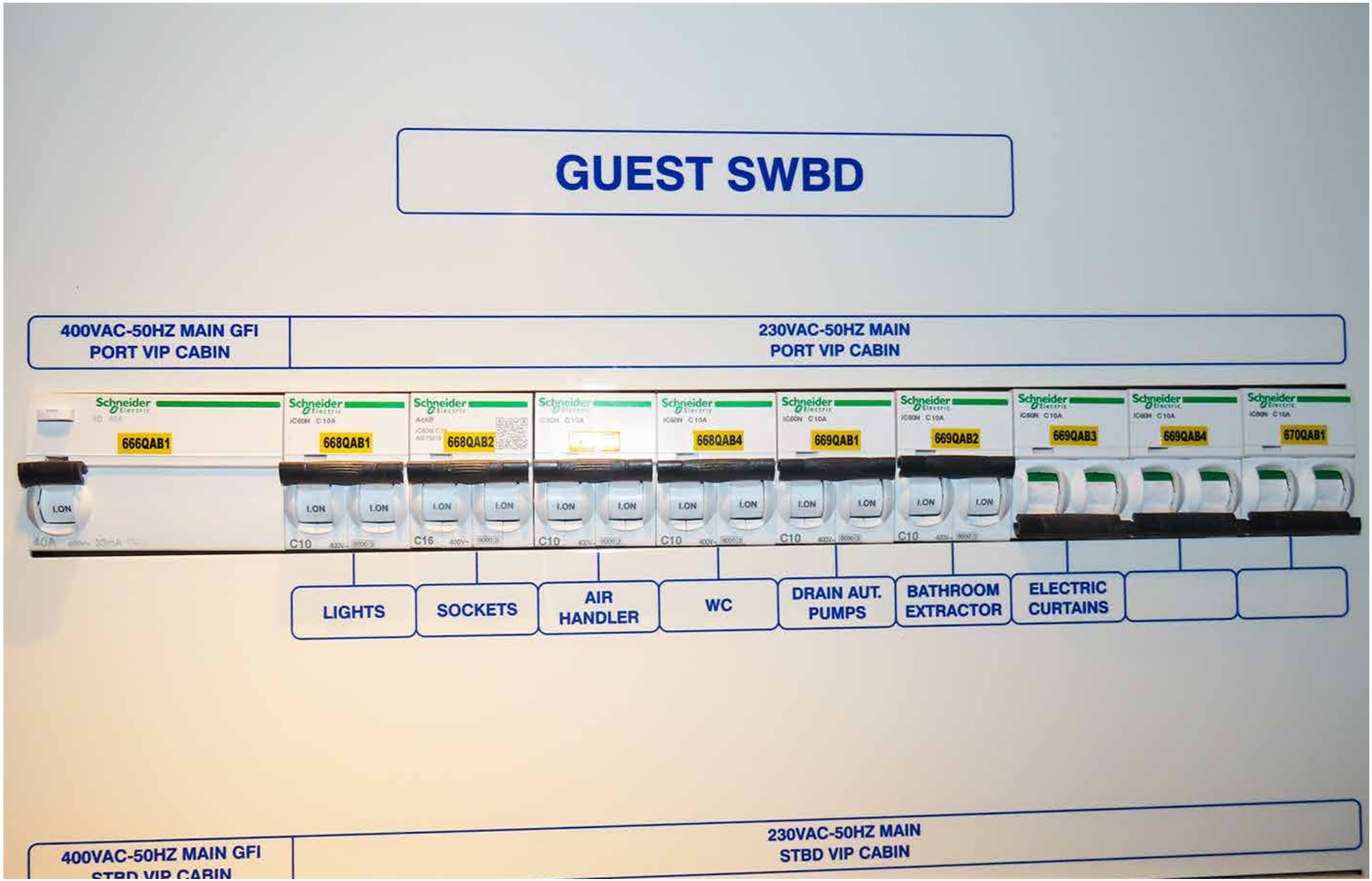

24VDC SERVICES
CREW AREA
Schneider Electric
Acti9
iC60N C10
773QAB1
773QAB2
773QAB3
773QAB4
I.ON
C10
400V~
DOMOTIC SYSTEM
AFT DRAIN AUT. PUMP
CREW BILGE LIGHTS

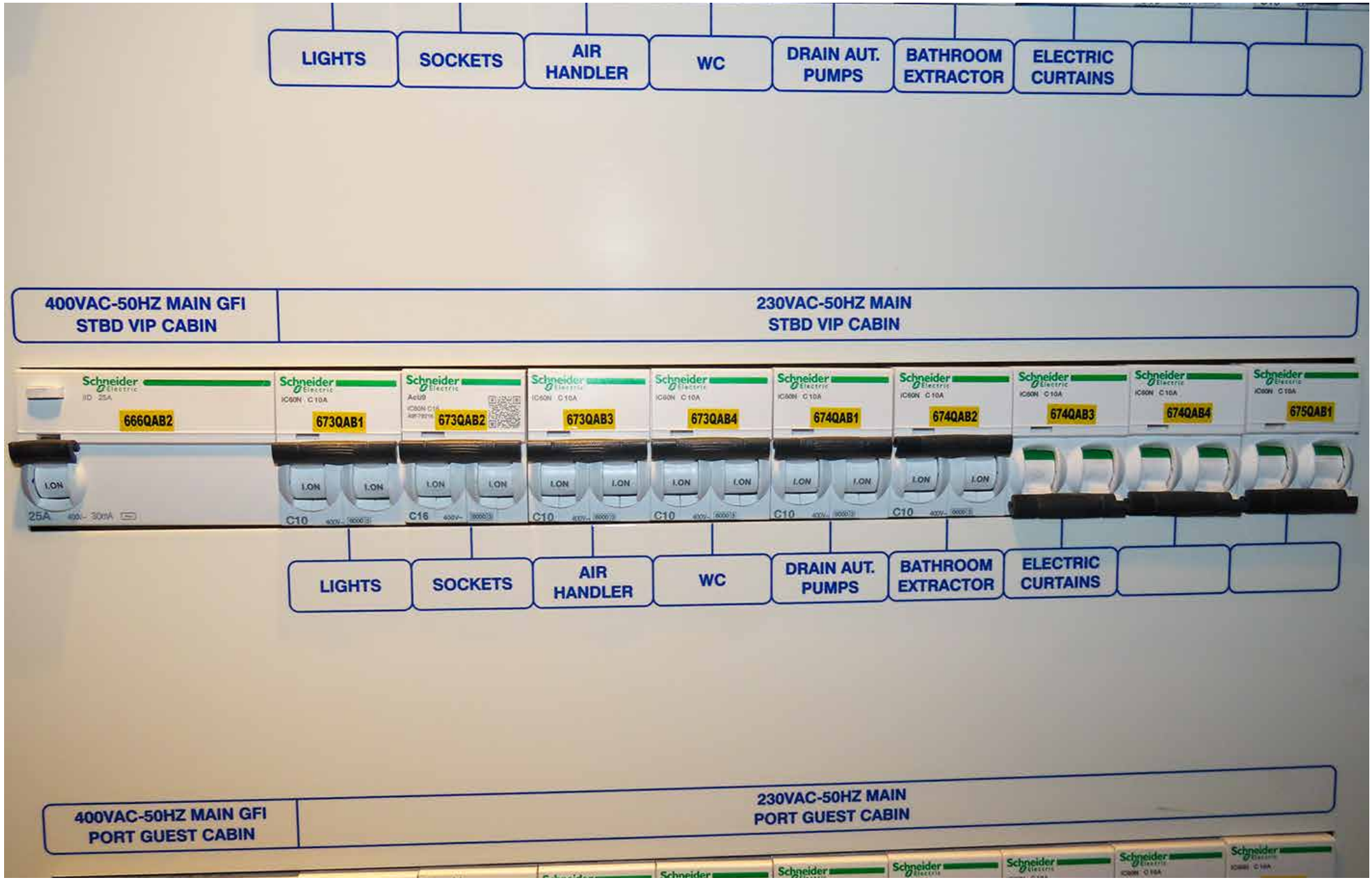
GUEST AREA LOWER DECK ELECTRICAL PANEL:
The electrical panel is located in the guest on the port side.

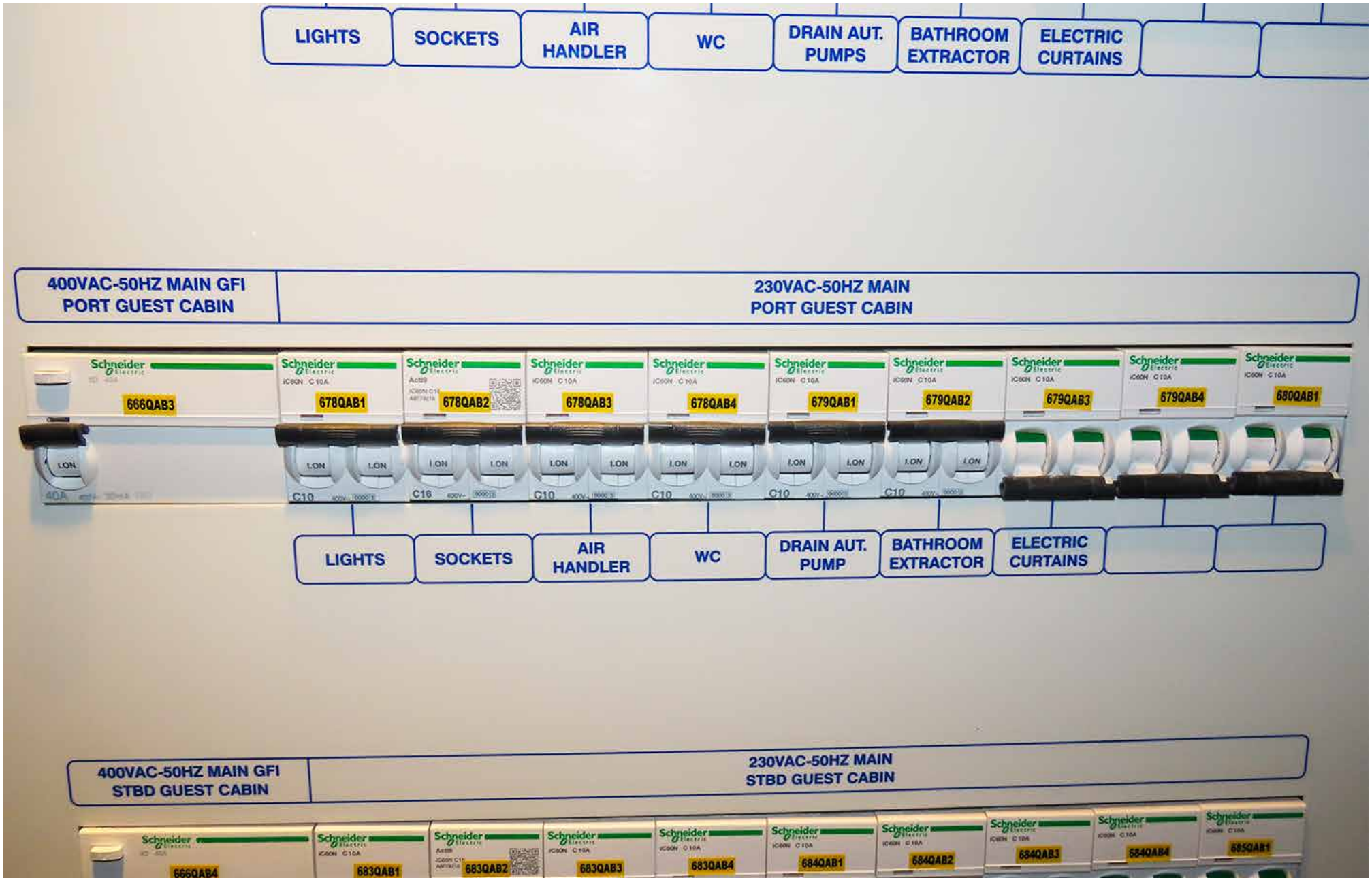
To simplify panel descriptions, the main sections are as follows:

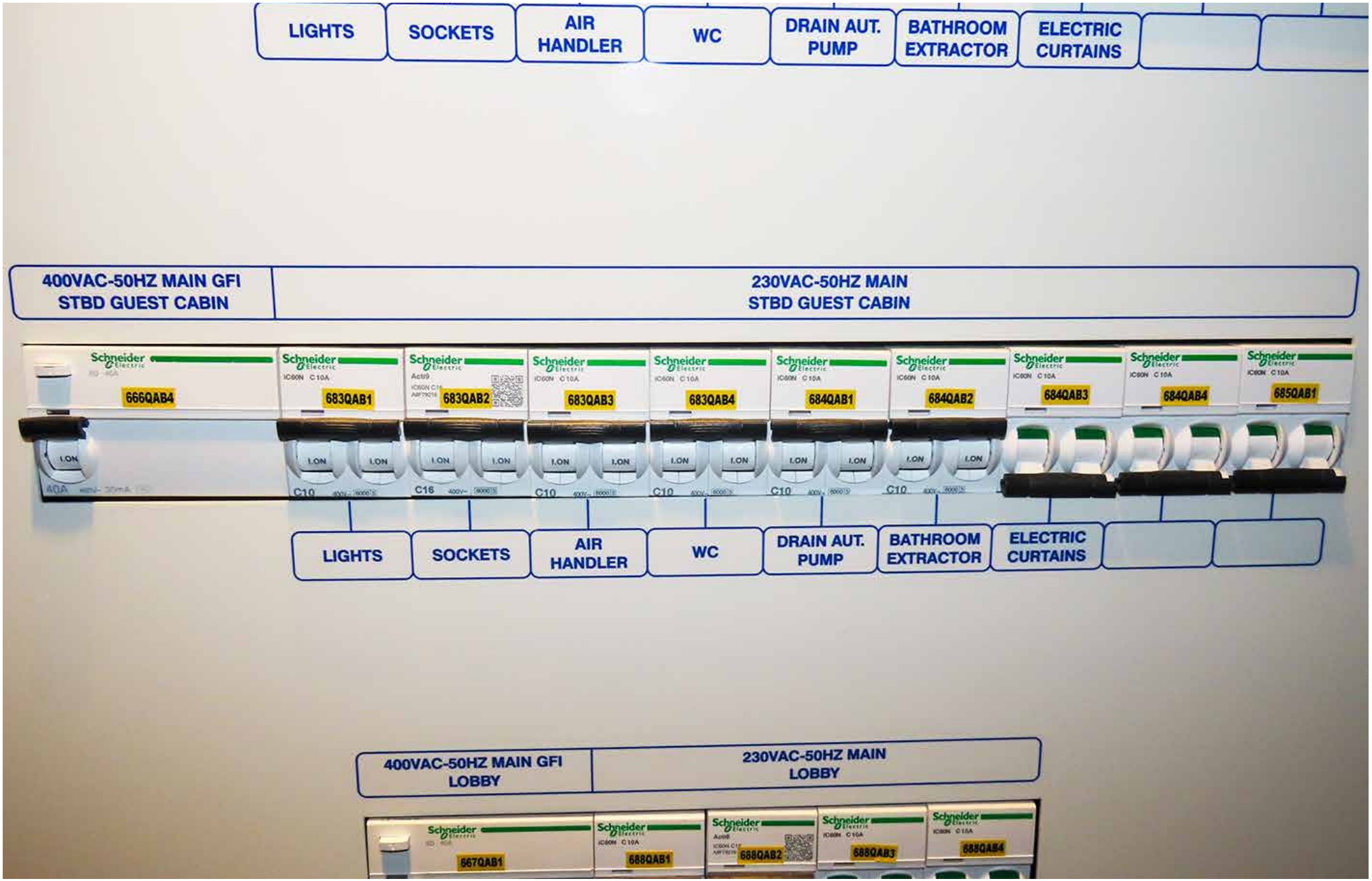
A. Magneto-thermal circuit breakers to protect on-board uses.

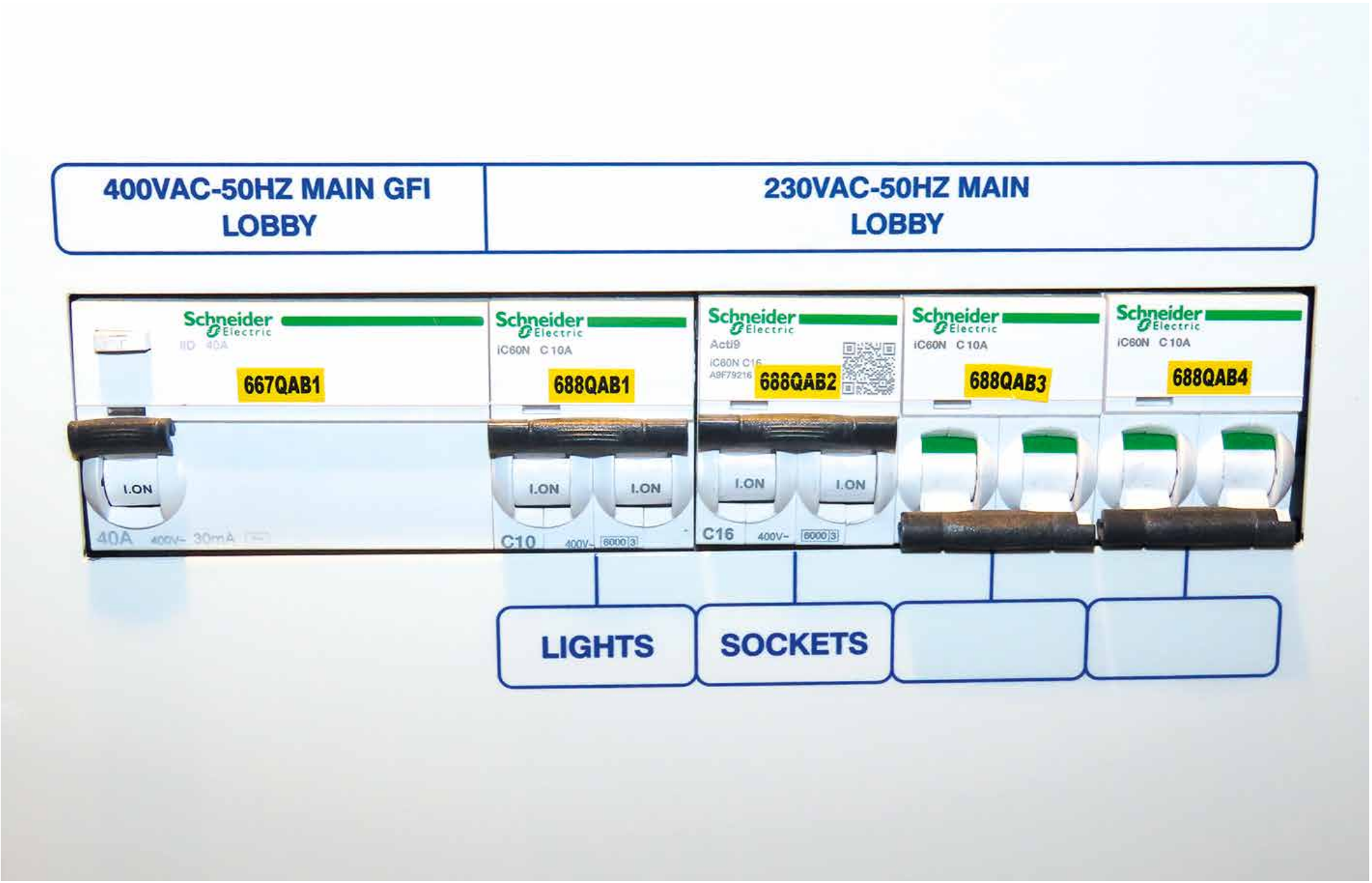
NOTE
For a detailed description refer to the electric installation manual.


GUEST SWBD
400VAC-50HZ MAIN GFI
PORT VIP CABIN
230VAC-50HZ MAIN
PORT VIP CABIN
666QAB1
668QAB1
668QAB2
668QAB4
669QAB1
669QAB2
669QAB3
669QAB4
670QAB1
LIGHTS
SOCKETS
AIR HANDLER
WC
DRAIN AUT. PUMPS
BATHROOM EXTRACTOR
ELECTRIC CURTAINS
400VAC-50HZ MAIN GFI
230VAC-50HZ MAIN
STBD VIP CABIN


LIGHTS
SOCKETS
AIR HANDLER
WC
DRAIN AUT. PUMPS
BATHROOM EXTRACTOR
ELECTRIC CURTAINS
400VAC-50HZ MAIN GFI STBD VIP CABIN
230VAC-50HZ MAIN STBD VIP CABIN
666QAB2
673QAB1
673QAB2
673QAB3
673QAB4
674QAB1
674QAB2
674QAB3
674QAB4
675QAB1
LIGHTS
SOCKETS
AIR HANDLER
WC
DRAIN AUT. PUMPS
BATHROOM EXTRACTOR
ELECTRIC CURTAINS
400VAC-50HZ MAIN GFI PORT GUEST CABIN
230VAC-50HZ MAIN PORT GUEST CABIN


LIGHTS
SOCKETS
AIR HANDLER
WC
DRAIN AUT. PUMPS
BATHROOM EXTRACTOR
ELECTRIC CURTAINS
400VAC-50HZ MAIN GFI PORT GUEST CABIN
230VAC-50HZ MAIN PORT GUEST CABIN
666QAB3
678QAB1
678QAB2
678QAB3
678QAB4
679QAB1
679QAB2
679QAB3
679QAB4
680QAB1
LIGHTS
SOCKETS
AIR HANDLER
WC
DRAIN AUT. PUMP
BATHROOM EXTRACTOR
ELECTRIC CURTAINS
400VAC-50HZ MAIN GFI STBD GUEST CABIN
230VAC-50HZ MAIN STBD GUEST CABIN
666QAB4
683QAB1
683QAB2
683QAB3
683QAB4
684QAB1
684QAB2
684QAB3
684QAB4
685QAB1


LIGHTS
SOCKETS
AIR HANDLER
WC
DRAIN AUT. PUMP
BATHROOM EXTRACTOR
ELECTRIC CURTAINS
400VAC-50HZ MAIN GFI STBD GUEST CABIN
230VAC-50HZ MAIN STBD GUEST CABIN
666QAB4
683QAB1
683QAB2
683QAB3
683QAB4
684QAB1
684QAB2
684QAB3
684QAB4
685QAB1
LIGHTS
SOCKETS
AIR HANDLER
WC
DRAIN AUT. PUMP
BATHROOM EXTRACTOR
ELECTRIC CURTAINS
400VAC-50HZ MAIN GFI LOBBY
230VAC-50HZ MAIN LOBBY
667QAB1
688QAB1
688QAB2
688QAB3
688QAB4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LOBBY
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Schneider Electric
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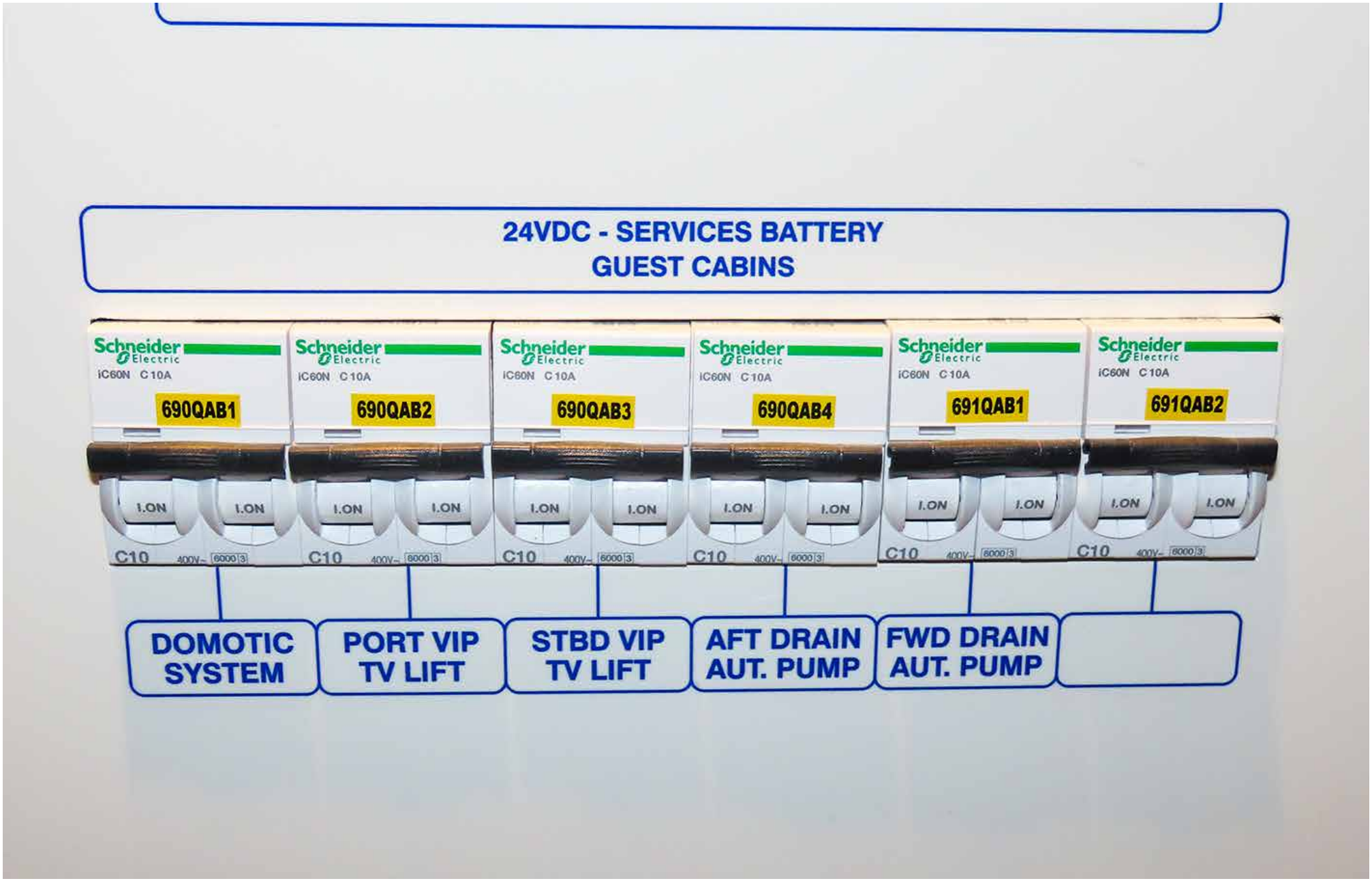
iC60N C 10A
Acti9
I.ON
40A
C10
C16
400V~
LIGHTS
SOCKETS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GUEST CABINS
Schneider Electric
iC60N C 10A
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690QAB3
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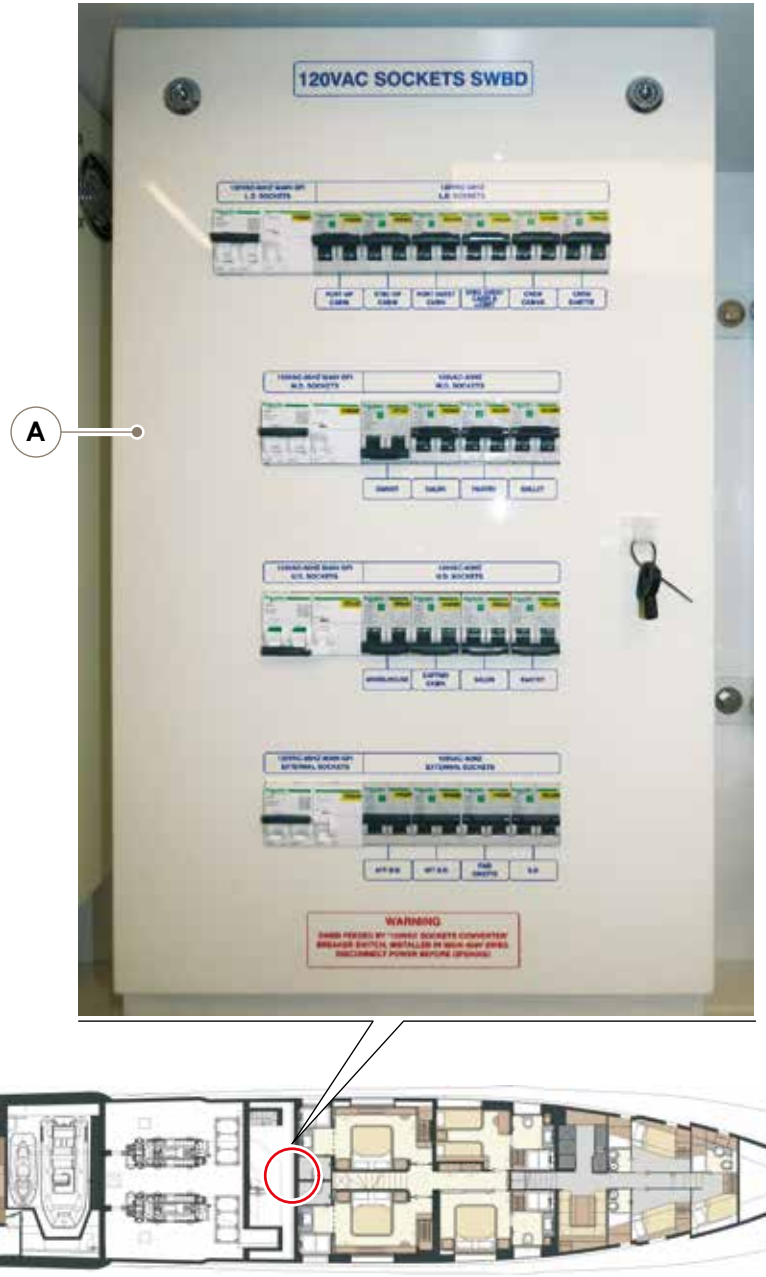
691QAB2
I.ON
C10
400V~
6000 3
DOMOTIC SYSTEM
PORT VIP TV LIFT
STBD VIP TV LIFT
AFT DRAIN AUT. PUMP
FWD DRAIN AUT. PUMP

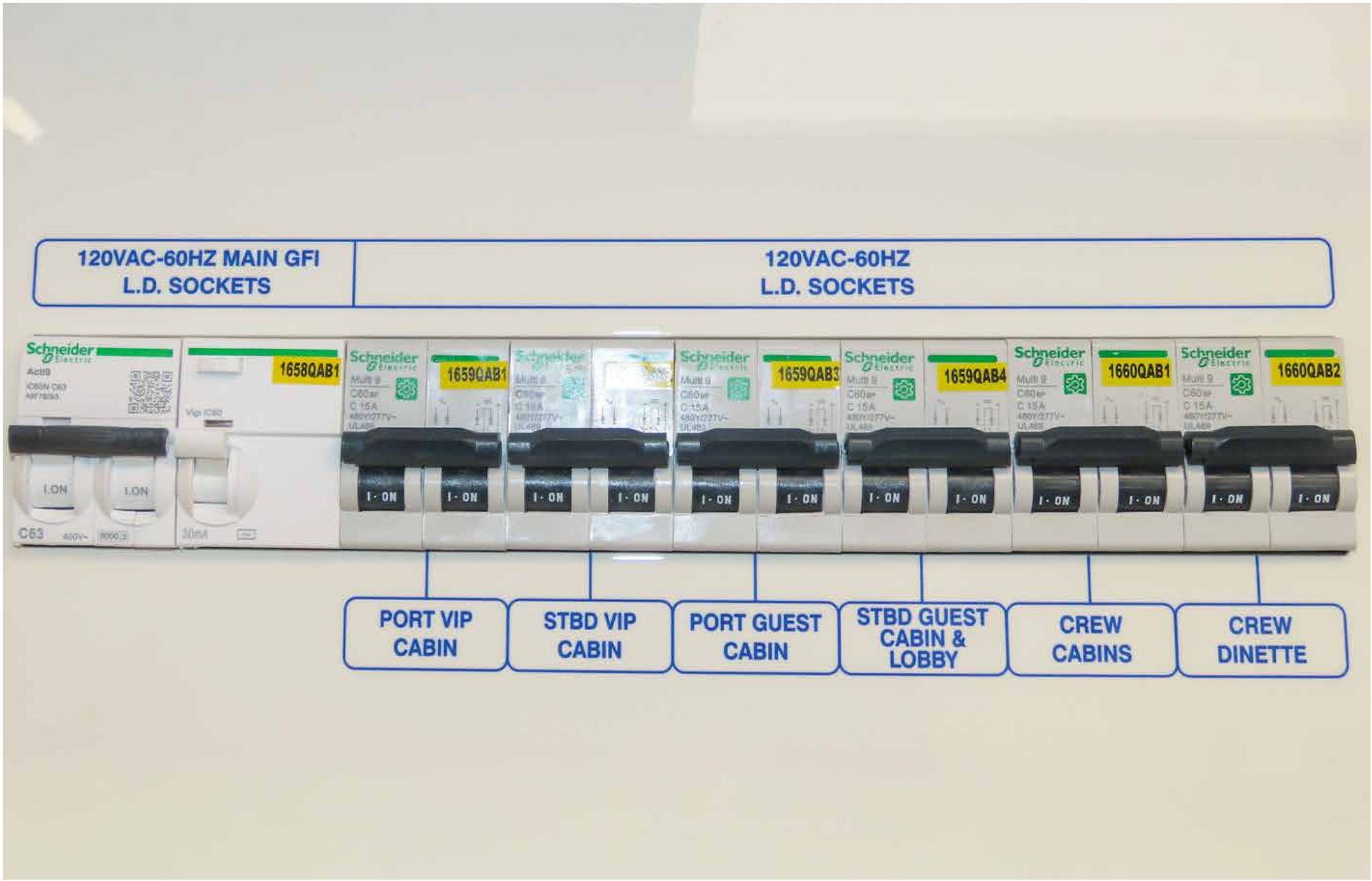
120V SOCKET ELECTRICAL PANEL:
The electrical panel is located in the control room.

The following main sections have been identified to simplify the panel descriptions:

A. Magneto-thermal circuit breakers to protect on-board uses.

> **NOTE**
> For a detailed description refer to the electric installation manual.

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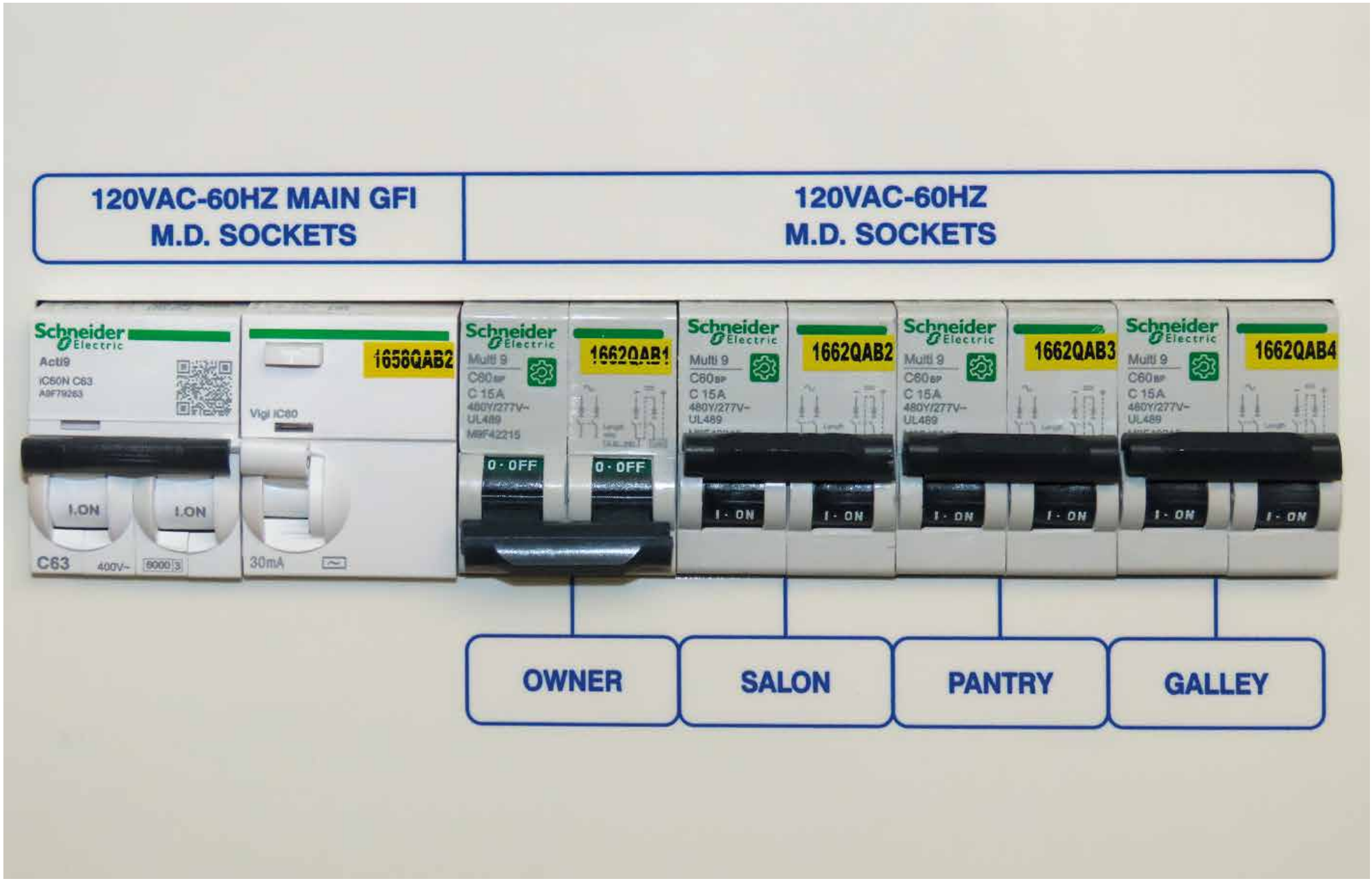
STBD VIP CABIN
PORT GUEST CABIN
STBD GUEST CABIN & LOBBY
CREW CABINS
CREW DINETTE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M.D. SOCKETS
120VAC-60HZ
M.D. SOCKETS
Schneider Electric
Acti9
iC60N C63
A9F79263
I.ON
I.ON
C63
400V~
6000 3
1658QAB2
Vigi iC60
30mA
Schneider Electric
Multi 9
C60
C 15A
480Y/277V~
UL489
M9F42215
0 · OFF
1662QAB1
0 · OFF
Schneider Electric
Multi 9
C60
C 15A
480Y/277V~
UL489
1662QAB2
I · ON
Schneider Electric
Multi 9
C60
C 15A
480Y/277V~
UL489
1662QAB3
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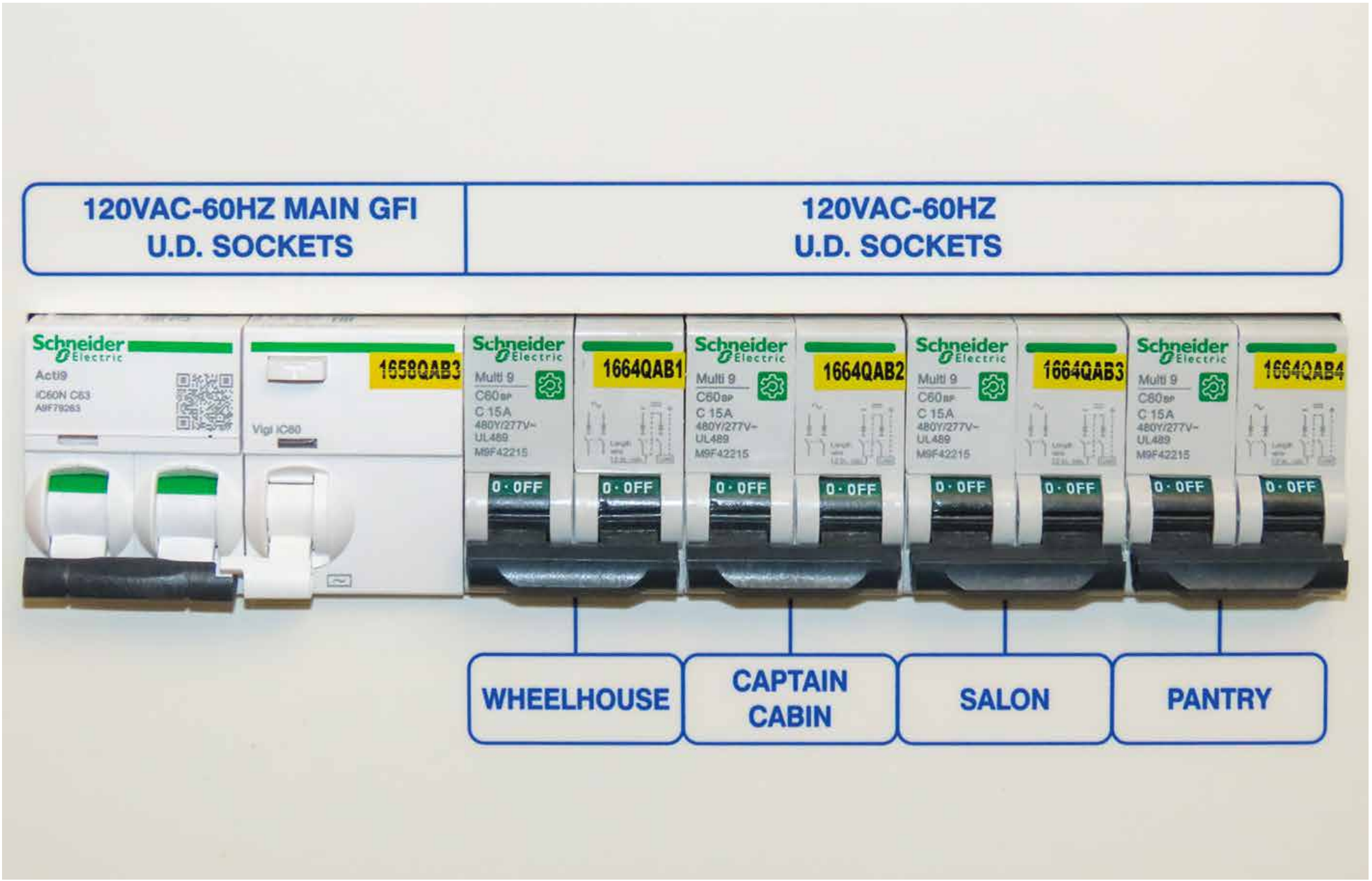
OWNER
SALON
PANTRY
GALLEY


120VAC-60HZ MAIN GFI
U.D. SOCKETS
120VAC-60HZ
U.D. SOCKETS
Schneider Electric
Acti9
iC60N C63
A9F79263
Vigi iC60
16598QAB3
Multi 9
C60
C 15A
480Y/277V~
UL489
M9F42215
1664QAB1
1664QAB2
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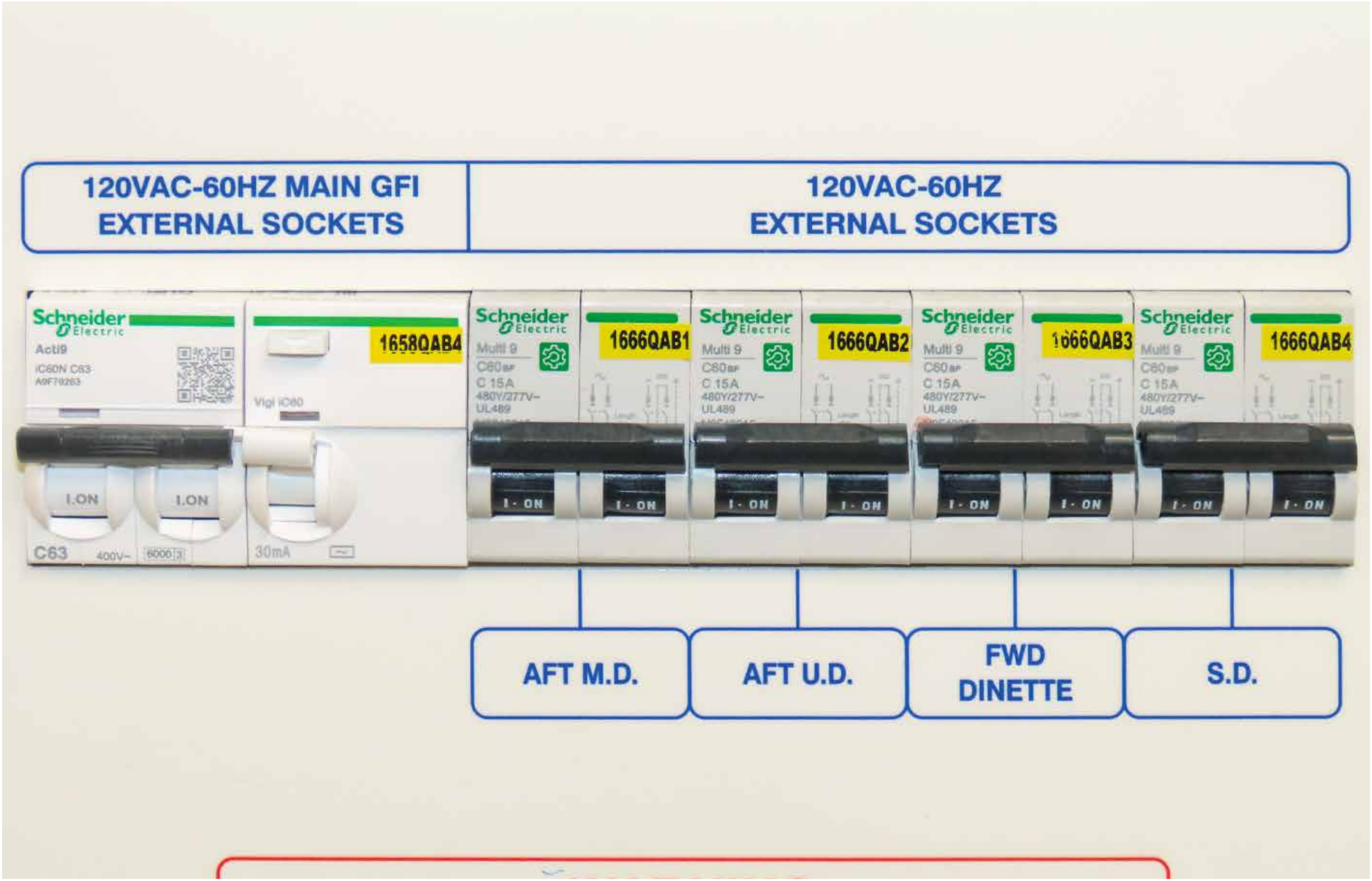
1664QAB4
0 · OFF
WHEELHOUSE
CAPTAIN CABIN
SALON
PANTRY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EXTERNAL SOCKETS
120VAC-60HZ
EXTERNAL SOCKETS
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Acti9
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Vigi iC60
1658QAB4
I.ON
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C63
400V~
6000
30mA
Schneider Electric
Multi 9
C60
C 15A
480Y/277V~
UL489
1666QAB1
1666QAB2
1666QAB3
1666QAB4
I - ON
AFT M.D.
AFT U.D.
FWD
DINETTE
S.D.

6.3 GROUNDING PROTECTION SYSTEM

In order to ensure your safety and that of the yacht, the manufacturer has provided an ground (" grounding") system to protect against electrical discharges.

DANGER

Danger of fire/electrocution. It is absolutely forbidden to modify and/or tamper with the grounding system.

DANGER

In the event that the yacht is out of the water and connected to the power supply from the shore, check for the presence of the grounding system in the electricity supply system.

WARNING

Periodically check the state of the sacrificial anodes and the porous plate: replace if corrosion has decreased their original mass by more than 50%.
If the deterioration is particularly rapid, this may be due to dispersions in the on-board electrical system. Have the electrical system checked by specialist personnel.

NOTE

For a detailed description refer to the electric installation manual.

6.4 BATTERY SET

Batteries are normally charged by the alternators during engine operation. Alternatively, they can be charged with the respective charger powered by the shore power supply or by the generator.

DESCRIPTION	ELEMENT NUMBER	FEATURES ELEMENT
Engine start-up	2	12 V 258 Ah (gel)
Generator start-up	1	24 V 120 Ah
Uses batteries	12	24 V 696 Ah (gel)
Radio batteries	2	24 V 120 Ah (gel)
Emergency batteries	8	12 V 258 Ah (gel)

WARNING
The batteries left unloaded over long periods of not operation, loose progressively their charge, until they become completely flat and get irreparably damaged.

WARNING
With running engines, the alternators are charging the batteries; so it is advisable to keep the charger switch set to OFF, in order to avoid damaging the alternators.

DANGER
NEVER obstruct the air intakes of the battery boxes as natural ventilation must always be allowed so that the batteries do not overheat.

WARNING
Do not lay objects on the cases containing the batteries.

CAUTION
A frozen battery may blow up if used or charged; do not start a Yacht with frozen battery. To prevent the battery from freezing keep it always completely charged.

DANGER
If the battery is used or charged in a closed area, ensure ventilation. Do not check the battery charge by short-circuiting the terminals with metal tools: use a densimeter or a voltmeter.

WARNING

EXPLOSION HAZARD

Any lithium battery powered device on board must be recharged only in open air areas, connected to a suitable charging system. Also please refer to the device dedicated Use and Maintenance Manual.

6.4.1 Battery check and maintenance

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Batteries	Battery check (accumulators)	During the periods when the yacht is not in use, have the battery terminals disconnected, or leave them all connected and have periodically all batteries charged (generator included).

CAUTION

It is necessary to keep the batteries charged at all times and to recharge them periodically even when the yacht is left unattended. If the charge level drops to a minimum, it may be irreparably damaged.

CAUTION

Monitor the voltage of the engine and user batteries. During the charging phase 29.1 V can be reached, this is a temporary value, well tolerated, both by the batteries and by the battery charger. This value has to be monitored and if this situation lasts for too long, the magneto-thermal switches of the battery chargers must be disconnected.

CAUTION

Check the state of the batteries checking that there are no traces of electrolytic corrosion on the poles and terminals of the connections; in this case, contact SERVICE and replace the elements that present the problem.

Carry out following checks:

Terminal inspection

- Check that the battery containers are clean and dry and that the terminals are coated with silicon grease and properly fastened. Clean and grease as required
- Identify positive and negative cables, prior to connecting (connect the positive terminal first and then the negative, in order to avoid sparkles).

DANGER

Batteries may be subject to explosion hazard, with subsequent risks of serious personal injuries. Do not use open flames, smoke, cause sparks or use arc-welders in the area where batteries are located. Do not disconnect battery cables when the generator is running. Battery acid may cause serious injuries. Wear safety goggles, gloves and protective clothing. Do not wear any bracelet, ring or any other jewel when operating on batteries.
In case of contact with battery acid, wash the contaminated part with fresh water for at least 15 minutes and address to a doctor.

DANGER

Always remove the negative terminal (-) for ground connection first and connect it last.

6.5 BATTERY BREAKER PANEL

The manually-operated battery breaker panels are positioned in the systems compartment and in the engine room.

The battery breakers switches are divided as follows:

- Port engine battery breaker;
- Starboard engine battery breaker;
- Engine battery parallel;
- Port generator battery breaker;
- Starboard generator battery breaker;
- Generator battery parallel;
- Services battery breaker with remote control;;
- Safety system breaker with manual control;
- Radio breaker;
- Emergency breaker.

CAUTION

Do not disconnect the battery breaker switches with the engines running because the engine alternators might get damaged.

CAUTION

The "Parallel" isolator switch must only be used in case of actual need and must be switched off as soon as possible.

CAUTION

The engine or generator parallel switch must only be used if the engine batteries are not sufficiently charged. The parallel battery switch must only be activated with the battery isolator breakers closed.

DANGER

Always keep the safety system battery breaker closed.
Disconnect only in case of maintenance.

6.6 BATTERY CHARGER

Service and engine battery chargers
On board your yacht there is a fully automatic and high performance service charger and engine battery charger.
The service charger and the engine battery charger are installed in the Control Room.
Each charger features optimised charging technology to charge batteries quickly and safely while still supplying power to connected utilities.
Every charger is also protected against short circuits, overloads and high temperatures.
A front panel meter on the charger displays information on the remaining battery capacity.
The more LED lights on, the more the battery is charged.

Energisation
The battery charger is energized when the switch is in the ON position. One of the LEDs on the front side turns on and the charge starts immediately.

De-energisation
The battery charger is de-energised when the switch is set to OFF.
The connection between the electric mains and the battery charger is not interrupted with the switch.

Bulk (LED 1 on)
The battery is discharged only when the first LED Bulk/ON (Quick charge/ ON) is lit. Now the battery charger provides full power and the battery voltage increases slowly. After having reached the 27.6 V level, the battery is about 25% charged and the second LED turns on.

(LEDs 1 and 2 on)
The battery has been charged to 25%. The battery charger still provides the maximum output current and voltage increases up to the level of absorption voltage. Phase A can last up to 6 hours max.

Absorption (LEDs 1, 2 and 3 on)
The battery has been charged to 50%. The battery charger limits the charging voltage to a safe level and the charging current decreases slowly.

(LEDs 1 to 4 on)
The battery has been charged to 75%. The charging voltage is limited to the absorption level, because the battery is nearly full. Current consumption will continue decreasing.

Maintenance (LEDs 1 to 5 on)
When all the LEDs are lit, the battery is fully charged. The slow maintenance/charging programme provides a output voltage, high enough to keep the batteries with a 100% charge, but low enough to prevent that the batteries suffer unnecessary constraints. The battery charger can now deliver full power to the connected utilities/loads.

LEDS ON	MEANING
Normal operation: the green light of LED no. 6 turns on	
1	Battery charger On
1+2	U output > 27.6 V
1+2+3	U output = absorption (28.5 V)
1+2+3+4	3 hours after the max. bulk time has started or I < return amp
1+2+3+4+5	6 hours after the max. bulk time has started or I < return amp. for 15 min or more
9	Recharging current equal to 0-5% of total current
9+10	Recharging current equal to 5-25% of total current
9+10+11	Recharging current equal to 25-50% of total current
9+10+11+12	Recharging current equal to 50-75% of total current

LEDS ON	MEANING
9+10+11+12+13	Recharging current equal to 75-100% of total current
6	Green: normal operation, red: faulty, OFF: stand-by or off
7	Green: communication of MasterBus in progress, OFF: no communication of MasterBus
Failure condition: the red light of LED no. 6 turns on	
6 red +1	Battery detection error
6 red +2	Too high temperature of the battery charger
6 red +3	Short-circuit warning: the battery charger will reduce charging current to 25%
6 red +4	CC error: CC voltage is too low or too high
6 red +5	Temperature detection error

CAUTION

Disconnect the dock power supply connections when the system is not in use.

NOTE

For further information on use and maintenance, please refer to the manufacturer's manual.

Generator battery chargers

Your yacht is equipped with an on-board generator battery charger installed in the control room.

The charger is activated by pressing and holding the on/off button for about 3 seconds. The MODE LED lights up green. If necessary and if the AC power supply is available, the charger will start charging the batteries.
Press the ON/OFF button again for about 3 seconds to turn off the charger.

WARNING

Switching off the charger or switching it to "standby" does not interrupt the connection to the batteries or the AC source. This means that the appliance is still powered on.

The status display on the front of the battery charger allows you to control the latter and monitor the charging process.

MENU	LED MODE COLOUR	MEANING
Level 1	Green	Status menu
Level 2	Orange	Output power menu
Level 3	Red	Error menu

STATUS

LED	STATUS	MEANING
MODE	Steady green	ON
	Steady red	Standby
	Flashing red fast	Error: navigate to error menu
Battery 1/2/3	Flashing green fast	Battery 1/2/3 in bulk phase
	Flashing green slowly	Absorption phase of battery 1/2/3
	Steady green	Battery 1/2/3 in float phase
NETWORK	Flashing green	Network communication

OUTPUT POWER

LED	STATUS	MEANING
MODE	Steady orange	Output power menu
Battery 1	Steady orange	Total power output 0-25%
Battery 2	Steady orange	Total output power 26-50%
Battery 3	Steady orange	Total output power 51-75%
NETWORK	Steady orange	Total output power 76-100%

ERROR

LED	STATUS	MEANING	SOLUTION
MODE	Flashes red quickly	Error menu	/
Battery 1	Flashes red quickly	Inverted polarity	Check the battery connection
Battery 2	Flashes red quickly	AC error	Check AC voltage /frequency
Battery 3	Flashes red quickly	DC error	Check battery voltage
NETWORK	Flashes red quickly	Temperature sensor error	Check the temperature sensor

NOTE

For further information on use and maintenance, please refer to the manufacturer's manual.

6.6.1 Battery charger check and maintenance

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Battery charger	Inspection Charge output	At least two or three times a year, have the connection of each wire checked by skilled personnel for looseness or oxidation. Keep the battery charger dry, clean and away from dust in order to ensure a good dissipation of heat. Periodically check the good condition of the cooling fan.

DANGER

Do not work on the battery charger or on the electric system if they are still connected to a current source. Disconnect the mains supply before connecting or disconnecting the battery.
Modification to the electric system must be carried out exclusively by skilled personnel and only after the approval of CUSTOM LINE.

MAINTENANCE

At least once a month check the correct operation of the battery charger.
At least once a month carry out the complete cleaning.
At least once every six months protect the contacts with proper products.

DANGER

Have the inner condition of the battery charger checked by skilled staff at least once a year. Faults like loose connections, burnt wires, etc., with following risk of fire spreading, must be repaired immediately.

WARNING

If the engines are on, the alternators are charging the batteries; it is therefore advisable to keep the magneto-thermal switch of the battery charger to OFF, in order to avoid alternator damage.

Battery charger check:

DANGER
Before operating on the battery charger, disable the generators start and cut-off the dock power supply.

This device can operate in a reliable and optimal way, only if following operations are performed:

- Check that all breakers and indicator lights are working, the wiring does not present any signs of cuts and all parts are clean and free from oxidation;
- Remove the casing and check that circuit boards are free from oxidation. If necessary, clean by using the detergent solution;
- Protect the electric contacts by using an appropriate product (DC4);
- Reinstall the casing after cleaning;
- Check at least once a year the connection of each cable (for loose connections, etc.);
- Keep the battery charger dry, clean and in a dedusted area to ensure a good dissipation of heat.

WARNING
All maintenance operations listed must be performed only by skilled personnel.

6.7 ELECTRIC POWER SUPPLY FROM SHORE

The shores are equipped with little columns carrying the connections for the supply of the electric system on your yacht.
The shore columns can supply different kinds of current, according to the harbour in which you are moored.
Ask the Port Authority for the right supply available from the column you want to get connected to.
By means of the monitoring system it is possible to check and monitor the electric parameters of the shore sockets, allowing a clear and readable visualization of the values measured; this facilitates the prevention of possible faults and misfunctionings and increases the safety of navigation.

In order to power the yacht's system to provide for the operation of the various on-board systems, two 125A sockets for electrical connection from the shore have been equipped with a frequency converter. The connections are of plug-sealed type driven in accordance with the rules and security technologies.

One sockets is equipped with an electric cable reel that allows for easy retrieval of the cable and can be activated by the switch located next to the cable outlet.
The on-board Frequency Converter converts the frequency from 60Hz to 50Hz.
The electric cable reel and the "shore socket" panel are located in the aft in the starboard technical room. The converter is located in the control room.

To use the shore electric power supply:
- Open (OFF) the main switch of the shore power socket from the "shore line disconnector" panel located in the aft technical compartment.
- Open (OFF) the switch on the shore charging point.
- Take out the cable and connect it to the shore charging point.
- Close (ON) the switch on the shore charging point.
- Close (ON) the main switch of the shore power socket.
- Before closing the magneto-thermal switches of all utilities, check the voltage supplied on the multimeters.

CAUTION

Do not modify connectors of shore power supply cable, use only plug compatible connectors. If the yacht power supply cable cannot be plugged into the shore socket, ask the Port Authority for an adapter.

CAUTION

Powering the on-board converter via the ground connections with voltages outside the operating range can cause irreversible damage to the equipment. It is ALWAYS necessary to check the value of the phase-to-phase voltage on ALL three phase-phase combinations before powering on the electrical panel.

DANGER

Before connecting the shore socket, ensure the type of voltage and the sockets available, their integrity and the absolute absence of moisture on the wire, on the socket and on the plug.
With plug connected check that wire:
- Cannot get in traction as a result of tide variations, yacht movements, etc.;
- Cannot get crushed, etc..

WARNING

Do not allow that cable end of shore power supply to floats in the water. This can cause an electric field and following injuries or even the death of the swimmers nearby.

DANGER

Before carrying out any intervention on the electric system, disconnect all circuits and the shore plug.

DANGER

Risk of electric shock from leakage currents. Never swim in waters near harbours or marinas.

MAINTENANCE

At least once every two weeks, have the various connections of electric boards, panels and boxes checked by experienced and equipped personnel. Make sure that ground connections of electric equipment and electrical panels are tight and not oxidized.
At least once a month check the status of the shore socket and eventually clean it.

CAUTION

To stop the power supply from the shore:

- Turn off the main shore socket switch in the aft technical room on the starboard side;
- Turn OFF the button on the main electrical panel;
- Turn OFF the protection on the shore charging point;
- Disconnect the shore power supply cable.

WARNING

Have the converter, circuit breakers, electrical panels and other parts of the electrical system inspected by an electrician authorised by CUSTOM LINE to ensure correct operation and to detect any signs of overheating.

DANGER

The AC system has characteristics similar to those of the home systems; for this reason, it is necessary to periodically check the conditions of the grounding system, of the residual current circuite-breakers and of the protection devices installed. The electric system is one of the most frequent causes of fire on board; therefore, it must be dealt with the utmost care and frequently checked.

DANGER

Before carrying out any intervention on the electric system, disconnect all circuits (shore and generators):

- Disconnect the shore socket;
- Turn OFF the magneto-thermal switch of the generator.

6.8 FUSES

In addition to the magneto-thermal protections, common fuses whose type and characteristics are suitable for the specific installation are obviously provided. Refer to the electrical system manual for their location on board.
The main fuses on board have the following features:

- 1 A
- 25 A
- 63 A
- 125 A
- 160 A
- 325 A

DANGER

For the safety and reliability of any electrical system, the related fuse must be replaced with one of the same electrical characteristics: in case of doubt, contact specialised personnel.

DANGER

After replacing any of the fuses, make sure they are tightened correctly.
Do not leave any foreign objects inside the electrical panel.

NOTE

For a detailed description refer to the electric installation manual.

6.9 INVERTER

The inverter is a completely automatic device and of high efficiency. The inverter transforms the 24 V DC voltage into 230 V AC.

- **ON, Switch**
  Position the ON/OFF switch, located on the front panel of the inverter to "**ON**". The green light "inverter on" lights up and the inverter starts.

- **OFF, Switch**
  Position the ON/OFF switch, located on the front panel of the inverter to "**OFF**". The inverter stops and all lit lights switch off.

Warning lights
The functions of the warning lights located on the inverter front panel are:

- **Inverter on**
  The green light indicates when the inverter is ON.

- **Overload**
  Light lights up when the inverter is overloaded. When the inverter is overloaded, the power limiter reduces the voltage output. According to the load, the inverter will switch OFF after a short period.

- **Overload + on slow**
  When the inverter remains overloaded for a long period of time, it will switch off and the "overload + on" indicators will blink slowly. This takes approx. 20 seconds, after which the inverter will restart automatically. This is called "wait state" and gives the inverter time to recover from any heavy surge load and gives the battery time to recover in case it is flat.

- **Overload + on fast**
  The inverter is switched off. When the inverter switches off 10 times with intervals no longer that 30 seconds, the inverter will switch off permanently and the "overload" and "on" indicators will blink fast. To switch the inverter on again, you have to switch the inverter off and on again.
  When the output terminal is short-circuited, the inverter will overload. The "overload" and "on" indicators will blink slowly. The inverter will try to start up ten times. If the short-circuit is not removed, the inverter will switch off permanently. Remove the short circuit and reset the inverter by switching it on and off.

- **Low battery (nearly flat)**
  The inverter is OFF when the battery voltage is too low. If the voltage increases above certain values, the inverter restart automatically.

- **Temperature**
  The inverter switches OFF in environments at high temperature and/ or remarkable overload. After the cooling, the inverter starts automatically.

DANGER
When disconnecting the inverter by means of the switch located on the front panel the connection with the mains is not broken off.

NOTE
For further information on use and maintenance, please refer to the manufacturer's manual.

6.9.1 Inverter services maintenance

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Inverter	Maintenance and check	At least once a year, have the cable and wire connections checked by skilled personnel; they should still be tight and not oxidized. Keep the inverter/battery charger dry, clean and away from dust to ensure a good heat dissipation. Periodically check the good condition of the cooling fan. If the device is off during the maintenance and/or repair works, it should be set to prevent an unexpected or unintentional activation: • Switch off the connection with the batteries or remove the inverter fuse; • Make sure that nobody can tamper with the precautions taken.

DANGER

Do not work on the inverter or on its system if still connected to a current source. Only qualified staff can carry out interventions on the electric system and only after the approval of CUSTOM LINE.

DANGER

Have the inner condition of the inverter checked at least once a year by skilled personnel. Faults like loose connections, burnt wires, etc.., with following fire break risks, must be removed immediately.

WARNING

The uses supplied by the inverter highly stress the batteries that could discharge as a result

MAINTENANCE

At least once a month check the correct operation of the inverter.
At least once a month carry out the complete cleaning.
At least once every six months protect the contacts with proper products.

6.10 GENERATOR SET

On board your yacht, two generators are installed one above the other, at the entrance of the engine room.

The generator power supplies can be identified on the fuel distribution clarinet. They can be interrupted through the two delivery valves, which may be used to interrupt the fuel lines in case of an emergency in order to cut off power to the units.

Before being sent to the generators, the fuel passes through separator filters to remove dirt particles and separate any water present.

The exhaust gases, instead of being discharged directly outside, are conveyed through mufflers, one per generator located near them. These mufflers, by injecting water in the exhaust pipes, allow cooling down the fumes and, at the same time, reducing the noise produced by the water outflow.
The exhaust gases are then conveyed and subsequently discharged outside.

The sea cocks of the cooling circuit are installed on the hull with the sea water strainers, fastened to a surface close to the sea cocks valves.
Clean the sea cock strainers according to the use frequency and to the condition of the sucked waters (seaweeds, mucilages, etc..).

Before cleaning the strainers, remember to close the sea cock valves, to stop the generators and then to proceed with maintenance.
Once this cleaning operation is completed, reopen the valves supplying the cooling circuit.
As to the yacht supply, on each power generator set is located the control panel for the check and start/stop operations.

The generators are also equipped with battery breaker switches.
The dashboard control panel monitoring and controlling the main operating parameters (oil pressure, coolant temperature, rpm, etc..) of the generators, in order to detect any alarm situation or potential risk.

Your yacht is equipped with the automatic parallel system between generators and shore socket.

NOTE
For further information on use and maintenance, please refer to the manufacturer's manual.

6.10.1 Generator set maintenance

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Lubrication system	Oil specifications	Use specified oils according to Manufacturer's indication.
	Oil check	Check the oil level in the crankcase daily or before each start-up to ensure that the level is in the safe range. Remove the dipstick and wipe the end clean, reinsert as far as possible, and remove. Maintain the oil level between the marks (Min and Max).
	Oil change	To change the oil, open the oil drain plug. Place the pipe in the oil collection container. Remove the oil fill plug. Open the oil draining valve located on the engine and drain the oil completely in the container. Change oil according to intervals suggested by the Manufacturer. **CAUTION** Do not mix different oils.
	Oil filter change	Remove the oil filter by turning it counter clockwise by means of a suitable wrench. Apply a thin layer of oil to the rubber seal of the new filter. Replace the oil filter according at time intervals recommended by the Manufacturer.
Fuel system	Cleaning and replacement of fuel pre-filter	Replace fuel pre-filter at time intervals recommended by the Manufacturer.
	Cleaning and replacement of fuel filter	Close the fuel supply valve. Loosen the fuel filter by turning it counter clockwise. Remove the filter and clean the contact surface. Tighten the filter on the adapter until the seal comes in contact. Replace fuel filter within the intervals indicated by the Manufacturer.

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Cooling system	Cleaning/replacement of the air cleaner	Stop the generator and allow it to cool before filling the cooling system. Close the bleed nipples. To relieve the pressure, slowly turn the cap clockwise until it stops for the first time. Remove the cap after the pressure has been completely removed.
	Cooling liquid top up	Before filling the cooling system stop the generator and let it cool down. Close the draining taps. In order to discharge the pressure turn slowly the plug clockwise up to the first stop. Remove the plug after the pressure has been completely released.
	Sea water strainer	At least once a week check for the correct water flow through the strainers. At least once a month check the integrity of the strainers. At least once a month clean the suction strainer. At least once every six months check the condition of the cover seal.

ENVIRONMENT

Recover all waste materials (engine oil, fuel, filter, etc..) according to the rules in force concerning the special waste disposal.

DANGER

Hot coolant and steams may cause heavy injuries or even death.

CAUTION

Failure to observe the oil specifications may cause inadequate lubrication/oil pressure and cold-starting difficulties.

CAUTION

If the oil level is not positioned between the two reference notches do not activate any device.

CAUTION

Pay special attention to the coolant level.
After emptying it completely, refill until the tank is full.
Periodically check coolant levels.

CAUTION

Damage due to sea water.
Sea water quickly deteriorates metals.
Wipe up sea water on and around the generator set and remove salt deposits from metal surfaces.

CAUTION

Do not add coolant if the engine is still hot. Adding coolant to an hot engine can cause the cylinder block or cylinder head to crack. Wait until the engine has cooled down.

NOTE

For further information on use and maintenance, please refer to the manufacturer's manual.

CUSTOM LINE 140’

7

Propulsion systems

7.1 MAIN PROPULSION SYSTEM

In the engine room and steering unit compartment there are all components for the yacht thrusting.
The propulsion system consists of two equal units.

Each one includes:

1. MTU engine model 16V 2000 M96L
2. Inverter ZF 5250 at 8°
3. Shaft cylindrical flange coupling Ø 120 mm
4. Shaft seal Ø 120 mm
5. Sealing through-hull
6. Propeller shaft Ø 120 mm - L= 5900 mm
7. Propeller shaft support Ø 120 mm
8. Propeller
9. Nut with spinner
10. Rudder

The engines installed on your yacht have the following specifications:

• Model		16V 2000 M96L
• Brand		MTU
• No. of cylinders		16
• Effective output	kW/bhp	1939/2638
• Rated speed	RPM	2450
• Dry weight	kg (lbs)	3450 (7606)
• Displacement	l (cu in)	35,7 (2179)

For any problem related to the use or maintenance of the engines, refer to the specific manuals or directly to the Service Centres.

NOTE
For further information on use and maintenance, please refer to the manufacturer's manual.

CAUTION
Do not operate the craft with an engine of rated power exceeding the maximum recommended power (actual power engine series).

Among all the possible interventions to carry out on the engines in case of need (see the operating instruction manual) hereunder are the most useful, according to our experience:
- Replacing the fuel filters.
- Replacing the oil filters.

CAUTION
The engine data boards are very important in case of repairs. Therefore keep them with care together with the warranty.

Remember that you can obtain a flawless operation and a high power only by respecting the prescribed maintenance intervals and by using the specified fuels and lubricants.

The engines have been installed on suitable elastic supports, which absorb vibrations and allow the minimal motion of the engines; in this way structures and devices connected with them are not damaged.

Besides, the elastic supports easy engine position adjustment, both for a new installation or after the required run in.

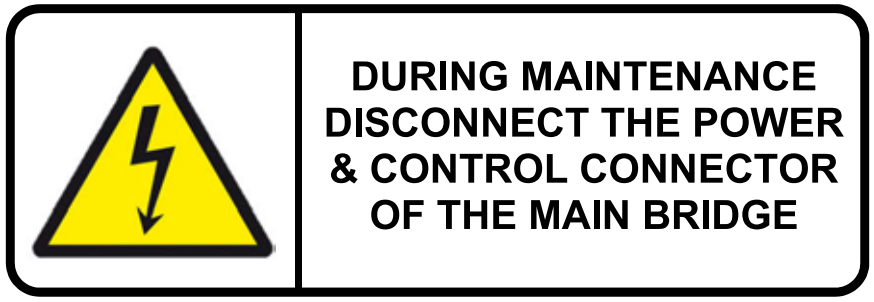
7.1.1 Engine control panel

This station must be used only in case of emergency. The controls on the panel allow all procedures for yacht navigation to be executed in "Local" mode.
The engine can be started or stopped via the selector.

The states of the engine operating and information that occurred about errors are displayed on the display located on the bridge.

CAUTION
When driving with the local station, it is essential to employ three people: the first at the yacht's controls, the second at the engine room door that transmits the indications to the third person who controls the local panel.

CAUTION
Any remote start and stop control of the engine control devices shall be capable of being disabled when the engine starting panel in the engine room is maintained.



7.1.2 Start of propulsion engines

First start-up
Read the manufacturer's specific documentation carefully before starting up a new or overhauled engine.

During the first hours of operation, it is recommended that new engines be operated at a maximum of three quarters of their maximum load and at varying speeds.

After this initial run-in, the engine should be brought up to full output gradually.

CAUTION
Use only approved technical fluids; otherwise the Manufacturer's warranty will become null and void and the engines can get seriously damaged.

Starting up
Before daily starting of the engine, check fuel level, coolant level and engine oil level and replenish, if necessary.

If the oil levels and coolant were insufficient refill inside of the expansion vessels, taking care not to exceed the index of the maximum level.

CAUTION
Engines must always be started with gear boxes at idle run and throttle levers must be set at minimum speed.

DANGER
Before starting an engine, ensure that nobody is standing in the dangerous area of the engine room.

Cooling liquid
The engine cooling system shall be filled with a mixture of potable water and anti-freeze based on glycoethylene or anti-corrosive. Refer to the manufacturer's specific documentation for this purpose.

- Slowly insert the coolant into the compensation yacht through the coolant filler cap.
- For the amount of coolant, refer to the manual provided by the manufacturer.

Engine oil

CAUTION
Do not top up oil so to exceed the MAX notch of the dipstick. If the oil level is too high, damage to the engines may occur!

Insert the lubricating oil for the engine through the lubrication oil filler hole. Refer to the manufacturer's specific documentation for refuelling quantities.

Sea water suction pumps

CAUTION
Do not let raw water pump run dry!
Make sure that all valves of the raw water circuit are open.
Drain the pump in case of freezing danger.

Oil level check

Check engine oil level only approx. 20 minutes after the yacht has been switched off.

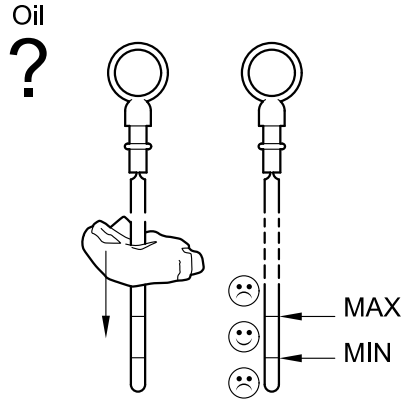
- Pull out dipstick for oil level check.
- Wipe it with a clean, dry and lintfree cloth.
- Place it back up to retainer.
- Pull out dipstick again.

The oil level should be between the two notches in the dipstick and must never fall below the MIN notch.

Top up oil as necessary.

Ensure outmost cleanliness when handling fuels, lubricants and coolants.

CAUTION
Do not top up oil exceeding the MAX notch of the dipstick. If the oil level is too high, damage to the engines may occur!



Starting the engines:

Proceed as follows:

- Check engine oil level only approx. 20 minutes after the yacht has been switched off.
- Verify that operational uses of the yacht are connected on the electrical panels.
- Start the generators.
- Check if cooling water temperature and generator oil pressure are correct. We recommend to pre-heat for some minutes, before supplying the generators with electric load.
- Set speed change on idle.
- Insert the ignition key and turn to use the starter consent to the engine.
- Click the "Start" button to start the engine (not more than 10 seconds).
- After start, release button and adjust the throttle on the required rpm.
- Check if oil pressure reaches the normal value within 10 seconds.
- Verify the correct temperature of engine cooling water.
- Start the first engine when you are sure it operates correctly; then start the second engine with the same procedure used for the first.
- Warm up the engine up for about 2-3 minutes at 1000 rpm max.
- Check the alternators charge.
- Activate the bow/stern thrusters by means of the relevant control panels of all helm stations.

CAUTION

If you are forced to use parallel batteries to start the propulsion engines, it is advisable to disconnect the electronic equipment to avoid voltage surges.

CAUTION

In case of intervention of a magneto-thermal protection, do not insist with repeated attempts to insert the switch, but check the status of the related electrical system.

CAUTION

We recommend avoiding an idle speed for periods longer than 5 minutes. Operation at idle speed is characterised by greater wear for the mechanical parts of the engine and is the most harmful form of operation in terms of pollutant emissions.

7.1.3 Testing after the start of the propulsion engines

- Check that water is being ejected from the exhaust. If this does not happen, accelerate slightly with the engine in neutral for a few seconds.
- Failure to stop the engine, locate the fault or call technical assistance.
- Spin engines just above the minimum until they have not reached operating temperature.
- Check that there are no unusual noises or excessive smoke. Failure to stop the engine and call technical assistance.
- Make sure the alternators are charging the batteries;
- Check the efficiency of the equipment by the plotter radar, VHF, compass, etc.
- Disconnect the shore connections, if attached;
- Remove the moorings and verify that there are no peaks in the notice or floating objects that prevent the movement of the propellers.

DANGER

Make sure that there is no staff at the discharge of the gas and in the vicinity of the mooring lines.

7.1.4 Stopping the propulsion engines

Operation
Do not immediately stop the engines after a full-load operation, but let them run low (about 5 minutes) to balance the temperature differences.

From the main helm station
- Set levers to central idle position of gear box.
- Press the STOP buttons.
- Turn the keys to OFF.
- Disconnect magneto-thermal switches relevant to the start keys of both engines.

From starboard and port manoeuvre stations
- Set levers to central idle position of gear box.
- Press the STOP buttons.
- Go to the inner helm station and turn the keys to OFF.
- Disconnect magneto-thermal switches relevant to the start keys of both engines.

DANGER
Make sure that the engines cannot be started by unauthorized staff.

CAUTION
With engines stopped carry out following:
- Disconnect all unnecessary electric uses and check the general status of the switchboard as well as the voltmeters and ammeters indications;
- Check the switches of the bilge pumps and their regular operation;
- Check for possible leaks from the shaft lines seals;
- Rinse the yacht with fresh water;
- Connect the shore electric power supply;
- Keep air extractors in the engine room running for about 30 minutes for ventilation and air cooling.

Before leaving the yacht, check following:
- Lower deck lights are not powered;
- Ensure that navigation lights, swinging spotlights and external lights are not supplied;
- Instruments not in use (plotter, radio, anchor winch, etc.) Are not powered;
- Ensure that devices in use are powered (automatic bilge pumps);
- Ensure that the shore plug is properly connected and the cable cannot be damaged;
- Disconnect battery breakers;
- Ensure that the safety equipment (life jackets, boathook, torches, etc.) Are stowed properly;
- Ensure that all bottles and containers with flammable liquids are properly sealed;
- Make sure that no food residues are left around (they could rot or clog scuppers etc.);
- Ensure that the gangway is in the right position and properly fastened;
- Ensure that mooring is correct (in case of bad weather conditions, tighten the mooring lines as much as possible and check the dis-

tance from other yachts is appropriate; ensure fenders are properly fastened, etc.);
- Ensure that sea water intakes are closed;
- Ensure that lower deck compartments are properly closed.

Unattended mooring

If the yacht is moored and left unguarded, operate as follows:
- Close sea cocks and overboard drain valves of sea water circuits;
- Check the condition of the main electrical panels and disconnect all unnecessary uses;
- Check all on board compartments, portholes, skylights and bilge;
- Ensure the yacht is safely moored.

CAUTION

It is advisable to disconnect the electric plug from shore, especially if the yacht is left unguarded for a long period. It is necessary to recharge the batteries periodically. Overboard outlets and drain pipes should be regularly checked, in order to ensure good buoyancy. The electric system should be regularly checked, in order to prevent fires on board.

7.1.5 Emergency stop of the propulsion engines

Due to a mechanical or electrical fault, the normal procedures for engine stop might not be sufficient; it is therefore necessary to stop the engines with the EMERGENCY procedures.

- **EMERGENCY STOP buttons**
  The EMERGENCY STOP buttons are located on all the helm stations and on the control panels of the engine room: keep them pressed until the engines are actually stopped.

WARNING

The engines emergency stop controls must be used only in case of real emergency. Never use these controls during the normal engine stop procedure.

CAUTION

The emergency stop generates heavy stress on the engines with consequent hazard of component damage.
Use only in case of real need.

DANGER

Before restarting the engines after an emergency stop, make sure to find and to clear the reason of the fault.

- **Fuel tie rods**
  Use the fuel shut-off tie rods located at the entrance to the stairs leading to the control room.

7.1.6 Propulsion engine maintenance

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Lubrication system	Replacement of the oil separator filter	Replace the separator filter, according to the time intervals suggested by the Manufacturer.
	Diaphragm check and replacement	Check if the diaphragm is damaged; in this case replace it.
	Oil level check	Check the oil level by means of the special dipstick; make sure the level is included in the allowable range (MIN - MAX). Do no start the engines if the oil level is not included between the two reference marks, as indicated in the Manufacturer's Manual.
	Oil and oil filter replacement	Replace engine oil according to time intervals and oil type suggested by the Manufacturer.
Fuel system	Fuel filter replacement	Replace fuel filter within the intervals indicated by the Manufacturer.
	Air filter replacement	Replace air filter within the intervals indicated by the Manufacturer.
	Check and replacement of air cleaner clogging gauge	Check the condition of the gauge; if it does not reset easily, replace it with a new one. Replace the gauge according to the intervals suggested by the Manufacturer.
Cooling system	Coolant check	Make sure the coolant is in the tank (lever sensor, reference plate, built-in eyelet).
	Cooling system filling	For coolant features refer to the User's Manual of the Manufacturer.
	Cooling system drainage	Drain the coolant only when the engine is stopped; follow the procedure indicated by the Manufacturer.

CAUTION

Use only approved fuels, otherwise the Manufacturer's warranty will become null and void.

DANGER

Hot oil can contains combustion residues which are harmful to health. Risk of injury and scalding! Wear protective clothing, gloves and goggles/ safety mask. Avoid contact with skin.
Do not inhale oil vapour.

DANGER

Because of the high temperature in the engine room, oil or fuel leaks can evaporate and create a serious risk of fire. Regularly check the integrity of the system.

CAUTION

It is absolutely necessary to view with CUSTOM LINE the documentation of the different components provided by the Manufacturer; for any problem relevant to the use or maintenance, please directly refer to the Service Centres, listed in the documentation provided by the Manufacturer. In any case there are some small procedures that can be carried out by the crew on board, after consulting the operation manual.

CAUTION

Do not top up oil in addition to the MAX mark the control rod. With a high oil level faults occur to the engine!

CAUTION

Do not use naked flames, do not produce electric sparks.
Do not smoke.
Avoid ignition sources. Risk of fires and explosions!

DANGER

A wrong use, a wrong maintenance, tampering and replacement of pieces, can cause serious damages or lethal events, beyond damaging the equipment.

The interventions on the electrical and mechanical equipment must be carried out by qualified staff after having examined the Manual delivered by the Manufacturer.

ENVIRONMENT

Dispose of waste materials (engine oil, fuel, filters, etc.) with respect for the environment and according to the laws in force.
Use only authorized disposal procedures, in case of doubts, contact the Port Authority.

DANGER

Any maintenance procedure on the engines is to be carried out with engines shut off, after they have sufficiently cooled down and after seeing to the prevention of their being switched on by disconnection of the magneto-thermal switches.

ENVIRONMENT

Handle used fuel filters as special waste.

ENVIRONMENT

Collect the liquid and dispose of according to current regulations.

CAUTION

Fill the cooling system only in a cold engine.

DANGER

Coolant is hot and under pressure. Risk of injury and scalding! Let the engine cool down and wear protective clothing, gloves and goggles safety mask.

CAUTION

Cold coolant in a hot engine causes thermal stress with the risk of formation of cracks in the components. Fill/top up only a cold engine.

CAUTION

If the oil level is not positioned between the two reference notches do not activate any device.

7.2 GEARBOX

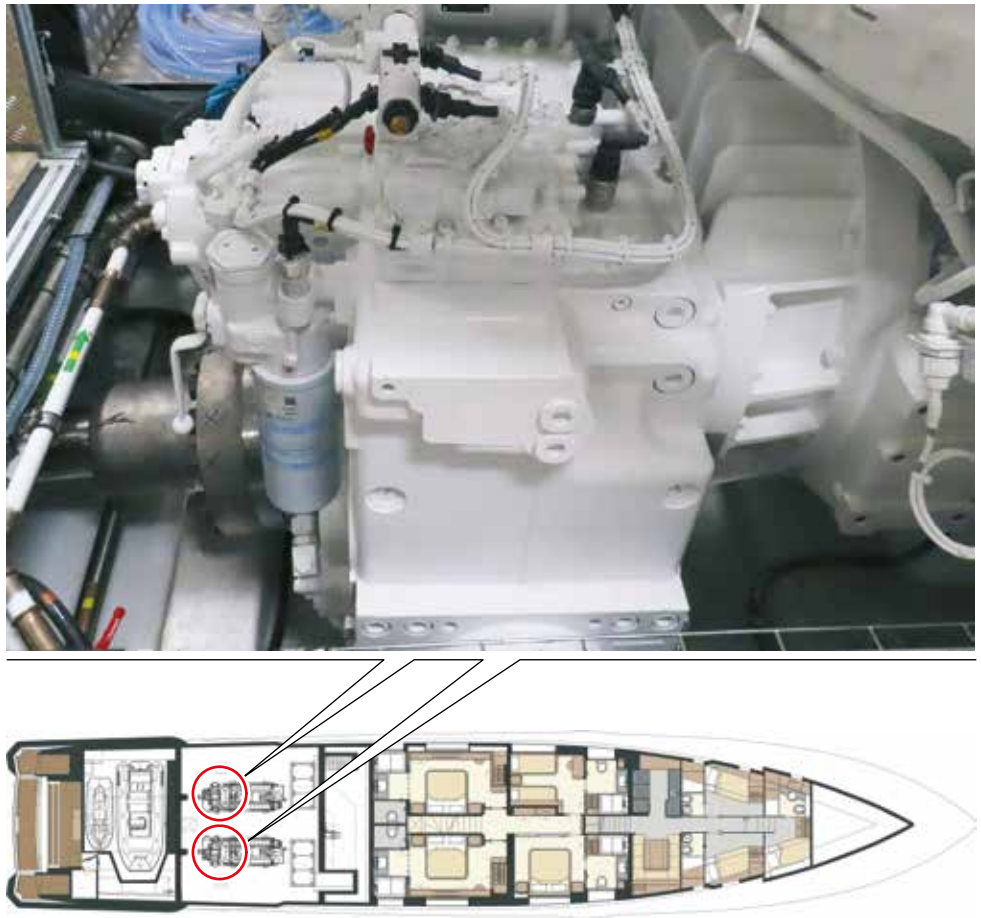
The main functions of a marine gearbox are the following:

- Couple the engine with the propeller shaft and reduce the number of revolutions of the propeller;
- Reverse the motion direction;
- Interrupt the propeller shaft motion (idle).

The gear boxes are provided with several documents.

NOTE

For further information on use and maintenance, please refer to the manufacturer's manual.



7.2.1 Gearbox maintenance and check

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Gearbox	Oil level check	For the correct maintenance and check procedures, refer to use manual delivered by the Manufacturer.
	Oil change	For the kind of oil and grade of viscosity recommended by the Manufacturer, refer to the gearbox plate.
	Oil filter change	Have the scheduled maintenance operations performed at the correct time schedule by authorized and skilled personnel, in order to keep the gearboxes perfectly efficient.

WARNING

The gearboxes are provided with emergency controls in case of fault.
Refer to the Manual delivered by the Manufacturer.

CAUTION

The use of the gearbox with a low quantity of oil may damage the gears.

An excessive quantity of oil may cause seals and vents to leak and can remarkably increase the operation temperature.

WARNING

Under normal operation conditions, the gear change can be carried out with the engine at low speed.

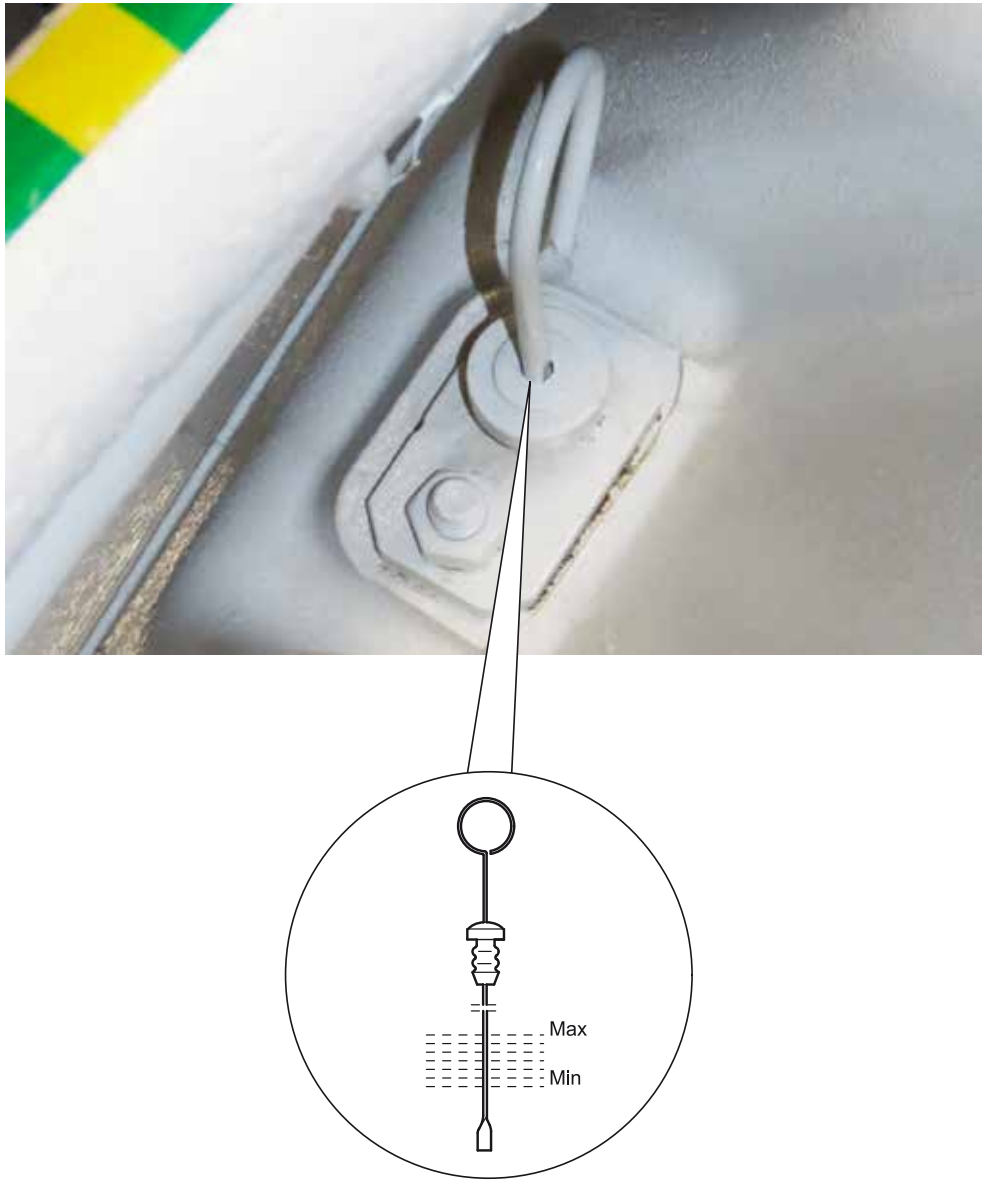
However, in case of emergency, gear shifting can be carried out with the engine at high speed, thus remarkably reducing clutch life though.

Gearbox check:
Check the oil level only when the engine is at a standstill. The proper oil level is between the upper and the lower notch of the dipstick.
After the first oil filling, a repair or the cleaning of the oil filter, the gearbox must be run for about two minutes.
Next the oil level check has to be carried out again two minutes after the engine has stopped. The correct oil level is between the highest and the lowest rod notch oil level measurement.

CAUTION
Before starting checking the oil level, check that the gearbox oil temperature complies with the normal operating specifications.

ENVIRONMENT
Recover waste oil following the norms in force, relevant to special waste disposal.

DANGER
Service the gear box only if engine and propellers are stopped and the magneto-thermal switch is OFF. Before starting the inverter, carry out the filling and the consequent check of the oil level. The use of the gearbox with a low quantity of oil may damage the gears. An excess of oil might cause leaks to the seals and to the vent and increase remarkably the operating temperature.

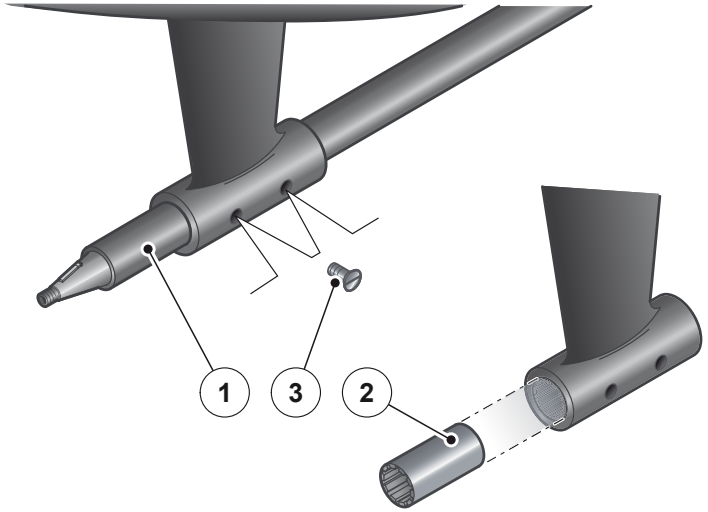


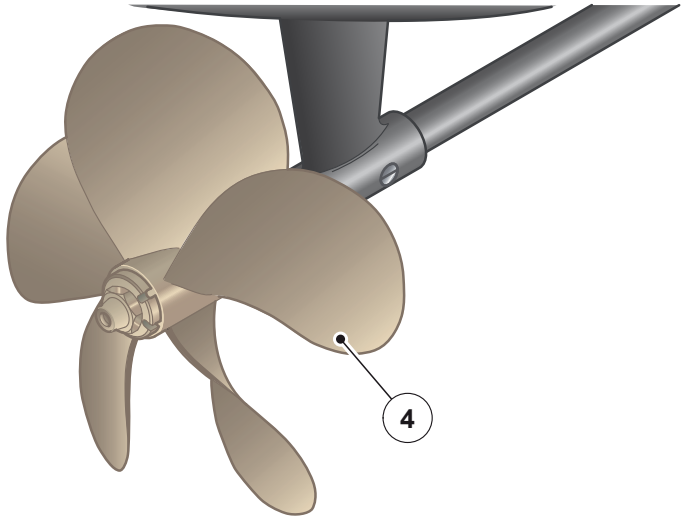
7.3 SHAFT LINE

7.3.1 Propeller shaft and through-hull seal

The propeller shaft is fastened to the gearbox by means of the flange coupling and is aligned on the three points represented by the gearbox, by a water-lubricated stuffing box seal and by the shaft support. The stuffing box case includes a piece fixed to the hull and an adjustable piece. The adjustable piece is closed to the fixed one, in order to compress the seal, located inside the stuffing box case. It's very important that the seal disposal is compressed, in order to avoid irregular pressures on the seal seat that might compromise life and efficiency of seal disposal. The outer shaft support includes a Neoprene bushing which uses the sea water as a lubricant.
Check it every season, as it might get worn quickly during cruising, especially in sandy waters. The bushing wear causes a vibrations increase.
When the yacht is on a sandbank, a good technician can easily consider, by moving the shaft, if the wear demands the replacement of the bushing.

DANGER
Never approach the shafts while they are rotating.





Shaft support bushings:
Periodical checks

- Check the shaft backlash **(1)** trying to move the shaft on a side back and forth to verify the backlash of the shaft supporting bushing **(2)**.

Assembly/disassembly

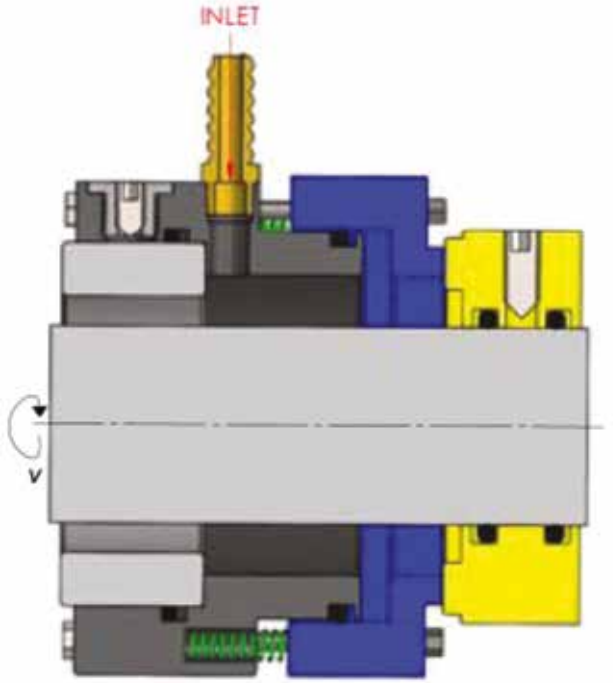
- If the propeller shaft **(1)** shows backlash, the water lubricated neoprene bushing **(2)** could be worn out; in this case replace it.
- Remove completely the antifouling to reveal the screwdriver screws **(3)** which lock the bushing positioned.
- After the propeller **(4)** and the shaft **(1)** have been disassembled, by means of a plastic tube with a slightly smaller diameter, pull out the bushing **(2)**.
- For reassembly, repeat the above-mentioned operations in reverse sequence.
- Do not use grease between propeller shaft and bushing.
- Remember to fasten the screws **(3)**.

CAUTION
For spare part request contact the CUSTOM LINE after sales & service department.

CAUTION
Remember to retighten the fixing screws **(3)** of the bushing on the shaft support. Never use grease or other lubricant between propeller shaft and Neoprene bushing.

7.3.2 Mechanical shaft seal

The mechanical seal has the function of preventing seawater from entering the yacht through the space between the propeller shaft and the hull.
It consists of two rotating rings held in contact by combined forces.
One ring is defined as rotating and rotates with the shaft; the other stationary is fixed to the hull. The structure of the stationary part is made by the use of industrial techno polymers, which guarantee not to run into problems such as ageing or the possibility of drilling or fire.
The seal between the parts is made by means of o-rings.
The cooling of the seal is ensured by the access of water through the flushing duct.



Before starting the engine

- Make sure the seal is clean on the outside as well. If foreign bodies are present, it is recommended to wash thoroughly.
- Make sure that the flush water valve is open and there are no leaks from the sealing surfaces.

DANGER
Do not approach the shafts when they are rotating.

CAUTION
In order not to compromise the seal, it is essential never to operate it without cooling water.

WARNING

CUSTOM LINE yachts are designed to have a correct transversal trim with full optional equipment, in the presence of propellers and shafts of respect. In case the yacht is not equipped with all the optional extras and with respect shafts and propellers, weights are inserted to compensate and make the trim correct.

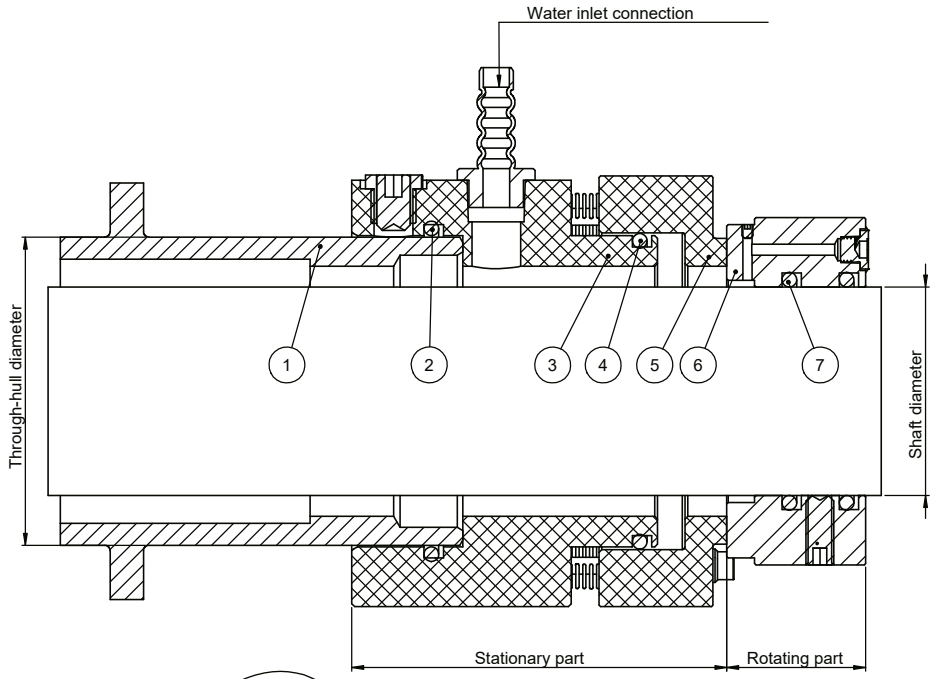
MAINTENANCE

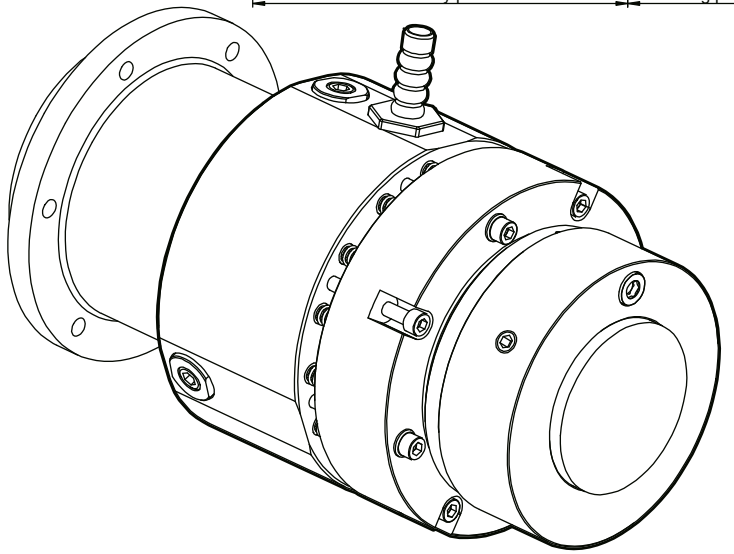
At least once a week, check that there is no water seepage.
At least once a month carry out a cleaning.
Periodically:

- Check the condition of the seals;
- Check the compression of the seal and when necessary make a compression;
- Check and maintain the cooling circuit of the seals to prevent dirt, algae and foreign bodies from blocking the flow of cooling water, causing the seals to overheat and permanently damage them.

NOTE

For further information on use and maintenance, please refer to the manufacturer's manual.





1. Through-hull
2. O-ring
3. Stationary support
4. O-ring
5. Stationary ring
6. Rotating ring
7. O-ring

7.3.3 Shaft line maintenance

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Shaft support bushings	Periodical checks (at least once a month) Assembly/disassembly	The Neoprene bushing of the shaft support, during navigation in waters with sandy suspensions, may wear rapidly. The bushing wear causes a vibrations increase. With the yacht in a dry shore, a good technician can easily evaluate, by moving the shaft, if the wear is so bad as to need the bushing to be replaced.
Stuffing box seal	Maintenance and check	With yacht moored at the marina, daily and before set up navigation.
Shaft lines	Periodical checks (at least once a month)	It is essential to keep always the propellers and shafts clean; the formation of parasites or the presence of foreign bodies like cables, cloths or plastic bags lead to propulsion power reduction, to propellers cavitation with consequent surface damage, and to vibrations causing damages to the stuffing box seals and to the bushings of the shaft supports. Checking and eventual cleaning may be carried out with the yacht in a dry shore or with the help of a diver. To clean scrape the barnacles, without engraving the metal, polish them with sand paper at thin grain.

7.4 PROPELLERS

The propellers have been designed in order to result lightly "unloaded" with a new yacht, hull clean and without displacement overloads: in this way the engines will develop all their power in average normal operating conditions, with hulls and propellers not perfectly clean and some overloads on board.

Periodically check if the propellers are not too "dirty", as this leads to a fast performance decrease and to a vibration increase.

In case of impact with the depth or submerged/semi-submerged bodies, check propellers and shafts immediately; in case of considerable vibrations, reduce the revolutions to the minimum and steer toward the harbour for repair, as a vibration increase might damage the propelling devices and the yacht structure.

On board the yacht has been prepared an appropriate housing for the propeller shaft of respect placed along the starboard side of the side accessible from the aft platform.

CAUTION

CUSTOM LINE yachts are designed to obtain a correct transversal trim with full optional equipment, and with spare propellers and shafts.

If the yacht is not provided with full optional and with spare propellers and shafts, some weights are inserted to correct the transversal trim.

The above-mentioned weights can be removed or displaced as soon as the yacht is provided with a new equipment.

7.4.1 Propeller maintenance and check

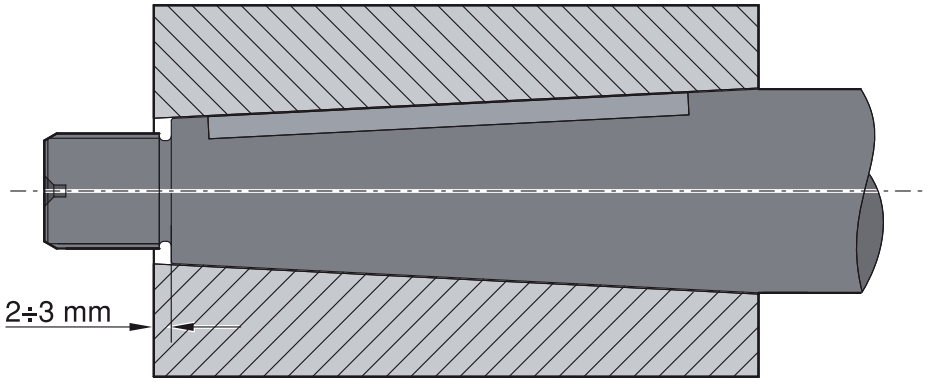
COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Propellers	Periodical checks	The propeller check should be performed according to the floating waters. Inspection and possible cleaning may be carried out with the yacht in a dry shore or with the help of a diver. Check if the propeller blades have notches, fractures, fouling or barnacles which may have a negative influence on the yacht performances during navigation. If you notice corrosion, check the anodes conditions and replace the propellers for major failures.
	Assembly/disassembly	The starboard and port propeller are not interchangeable between them neither with others as designed according to specific features of your yacht. Replace only with genuine spare parts supplied by the CUSTOM LINE after sales & service department.

Periodical checks of propellers:

DANGER
To clean and check the yacht in water: disable the engines and generators start.

It is advisable to carry out this operation by yacht in dry shore because maintenance is in this way eased. Check if the propeller paddles show notches or breaks, scales or barnacles, which may have a negative influence on the yacht output during navigation. If you notice corrosion, check the anodes conditions and replace the propellers for major failures.

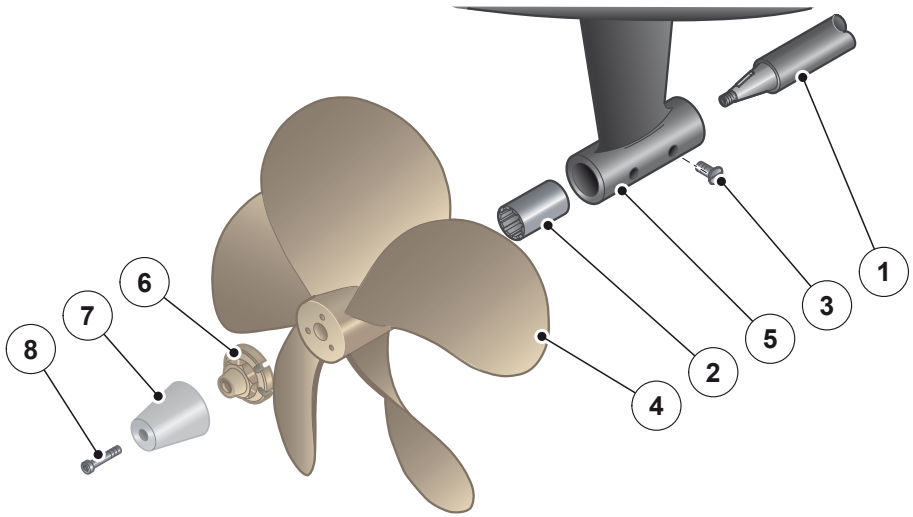
Propellers assembly/disassembly
The propellers (starboard and port) are not interchangeable between them; they are bronze meltings according to specific features of your yacht.
The extreme end of the shaft **(1)** is conical and a little key allows the coupling with the propeller **(4)** which must be inserted up to the shaft catch and leaving the propeller stretching out from the shaft plane of 2÷3 mm.



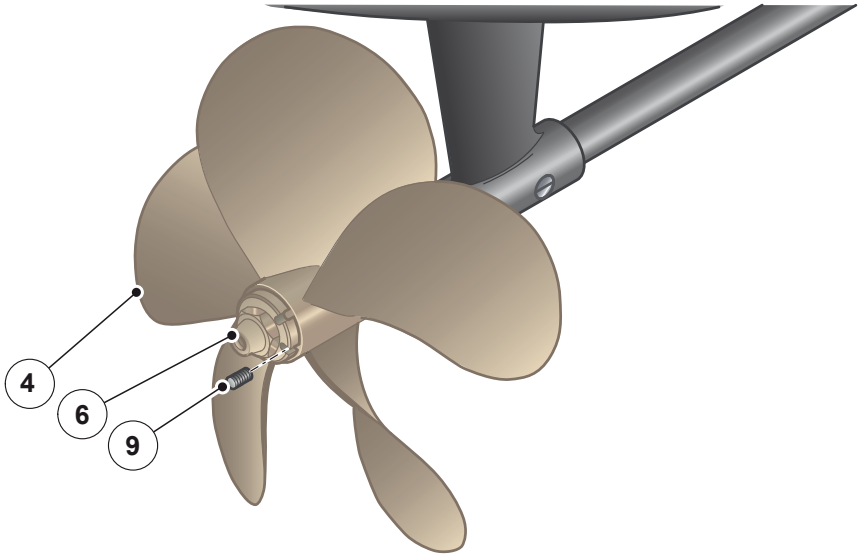
CAUTION
Do not replace the propellers of your yacht with other of doubtful origin.
Contact the CUSTOM LINE after sales & service department.
Each yacht model has its own propeller.

Pieces should not show burrs or dents to make the coupling effective. It is essential to lubricate them with plenty of silicon grease.
Tighten the nut **(6)** locking the propeller **(4)** on the shaft **(1)**;on the propeller hub there are three holes to 120°. Tighten as necessary to insert the dowel **(9)**,to avoid natural loosening.
For disassembly keep an extractor at disposal so as not to deform the propeller **(4)**.
In case of obstacles or excessive sticking, heat the propeller **(4)** to expand the coupling and ease the removal.

CAUTION
Avoid the use of hammers or mallets to pull out the propeller. The pull out force must be uniformly exerted on the entire hub of the propellers.



Hereunder a list of the components of shafts and propellers line:
1. Propeller shaft
2. Shaft support bushing
3. Countersunk screws with notch
4. Propeller
5. Shaft support
6. Nut
7. Propeller anode
8. Screw
9. Dowel



7.5 EXHAUST SYSTEM

7.5.1 Engine exhausts

The on-board engine exhaust system consists of:

1. The first stage consists of insulated, dry-steel marine silencers suitable for reducing engine noise emissions;
2. The second stage consists of a composite muffler, in which the exhaust gases are cooled and silenced by means of sea water injection.

WARNING

When starting the engines, check that water comes out of the exhausts; this means that the engines cooling system works correctly and that the exhaust is cooled. Accelerate if no water comes out. If the problem continues, contact the Service Department.

MAINTENANCE

At least once every three months carry out the tightening of the discharge raiser bolts.

CAUTION

A strong smell and a light smoke from exhaust insulation are normal during the first period of use.

7.5.2 Engine exhausts maintenance and check

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Exhausts	Periodical check (as necessary, according to the floating area)	Check the exhaust terminal cleanliness conditions periodically. Clean, if necessary. **CAUTION** Carbon deposits, marine growths and fouling may affect the engine regular operation, causing performance degradation and serious damages.

For each engine:

- Check whether the parts of the exhaust system (exhaust manifold, mixing elbow, exhaust pipe, hose stop, muffler, etc.). Show signs of cracks, leakage and corrosion.
- Check the hoses for signs of softness, cracks, leaks or dents. Replace them if necessary.
- Check for corroded metal parts or broken. Replace them if necessary.
- Check if there are any loose clamps, corroded or missing.
- Tighten or replace the fasteners and / or the brackets if necessary.
- Check that the exhaust outlet is not blocked.
- Visually check for leaks in the exhaust.
- Check for excess carbon or soot in the exhaust.

These residues indicate the presence of exhaust losses that must be eliminated.

CAUTION

Some temperature sensors have been installed on both engine exhausts, the warning lights are visible on the fly and on the engine control panels in the helm station and they light up to indicate that the temperature inside the exhausts is too high.

7.6 FUEL SYSTEM

The system has a capacity of 28400 liters and can be filled by means of two refuelling fillers, located inside two proper peaks, placed along the walk-arounds of the yacht.
The system is built in accordance with the RINA class and consists of 4 main tanks located on the bottom at the centre of the yacht and 2 tanks for daily use, located under the garage on the left.
The level of fuel is indicated by the sensors inserted inside each tank. These sensors are used to display on the monitoring system how many litres there are in the daily tanks and in the main tanks.

On the daily side tanks it is possible to directly detect the fuel level through an indicator in order to verify if the transducer value coincides with the actual fuel value inside the tank.

CAUTION
It is good practice, before tackling a navigation, further verify the fuel level also by means of the optical indicator present on the tank flange.

CAUTION
The level indicated by the electric gauge is only indicative: for an accurate reading, always refer to the direct visual reading in the engine room.

The fuel is sucked directly from the daily central tank and is sent to the distribution manifold which supplies the engines and the generators.

The fuel sucked, before reaching the uses, flows through the water/fuel separator filters holding impurities and separating possible water in the fuel.
If the daily tanks reach the minimum level, two electric pumps housed in the engine room can be activated using a selector on the main electrical panel in the system room.

The fuel is manually transferred from the structural tanks to the daily tanks.
The two tanks are continuously communicating with each other and it is necessary to check by means of the optical indicator or through the appropriate monitoring system that the day tank does not go below the minimum level.

In "OFF" the transfer among the main tanks and the daily tank is prohibited and the fuel of the main tanks cannot be used.
In order for the manual control of the electric pumps to be activated, it is necessary to act on another selector on the general electrical panel where it is possible to select the type of pump 24 V or 400 V.
During inlet, the fuel flow produces a lot of foam; if it comes out, you might think the tank is full.
Therefore, it is good to wait for a few minutes and then fill, so as to be sure the tank has been filled correctly.

CAUTION
While checking for consumption and distances, it is a good rule to always keep plenty of margin, so as to be able to face bad weather conditions or other possible unexpected events.

WARNING

The sensor reading can be distorted by the temperature, because the specific weight of fuel varies according to this last parameter and to the yacht trim.
Therefore before setting-up for navigation, always refer to the visual level in the engine room.

The design of the tanks also ensures the fuel settles inside them. It is advisable to fill the tanks a few hours before departure, so that any fuel impurities and water have time to settle.

The engine and generator fuel intakes can be shut off locally, as well as remotely via quick-closing valves located on the daily tank outlets and are remotely controlled using a tie rod located on the stairs leading to the systems compartment to be used only in the event of an emergency.

The operation of the fire-fighting system must be preceded by the manual closing of the fuel shut-off valves by means of the relative tie rod located on the way down to the system room.

CAUTION

Fuel leaks create a fire and explosion hazard.
It is not allowed to stow fuel inside the stern garage into cans or containers different from the fixed ones of tender and jet-ski.

CAUTION

Filling lines pressure must be kept constantly under 0.3bar during bunkering operation.

For a better understanding of the system, see the manuals of the single devices.
Your yacht can be fitted with a fuel treatment system.
The system eliminates impurities in the fuel and stores them in a special tank in the engine room.

CAUTION

It is necessary to empty the fuel tank to the internal structural tank in case the yacht should be in storage or in the hull in dry condition.

ENVIRONMENT

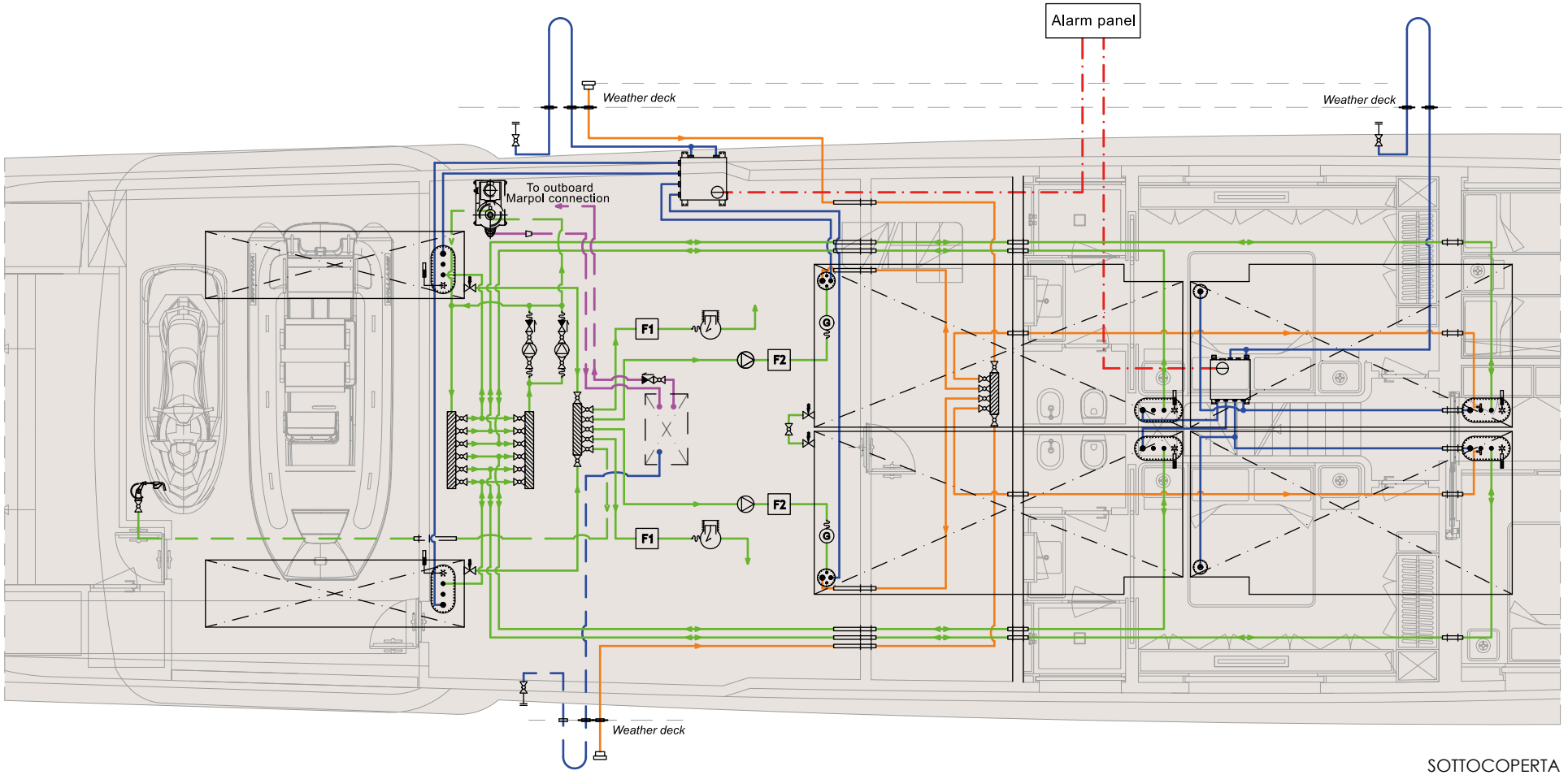
Every marina has dedicated toxic waste disposal areas. It is recommended not to scatter waste that can contaminate the environment (such as used oil, fuel, oily liquids, batteries, etc.).
Prior to perform any job in the engine room, disconnect the bilge pumps switches, to prevent accidental fuel, lubricant or other liquid leaks and therefore the pollution of the yacht surrounding waters.

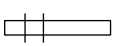
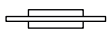
CAUTION
Pay attention not to accidentally damage fuel system lines.
Perform a visual inspection of all pipes periodically.

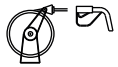
The fire-fighting system drive does not result in the automatic closing of the fuel shut-off valves will the arrest of the generators, which must be stopped manually using the appropriate emergency buttons located on the descent to the local technician.

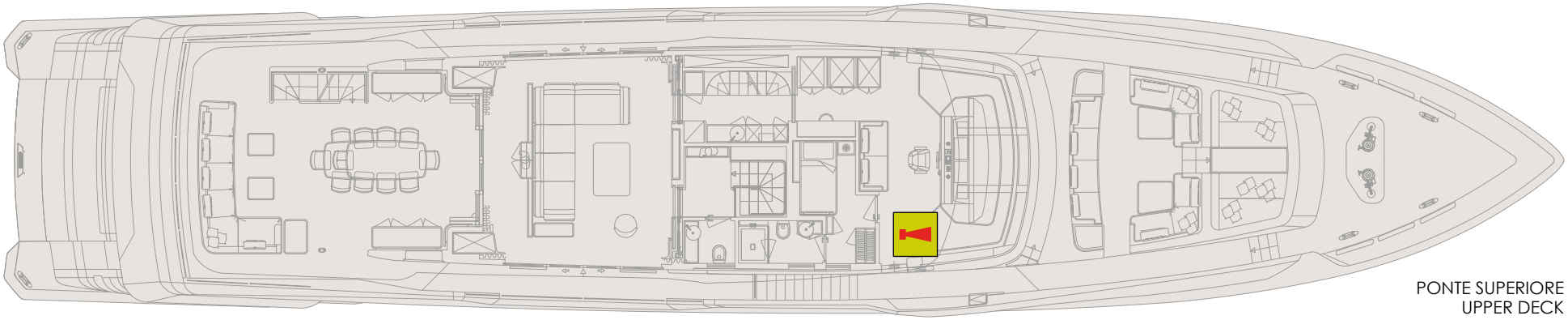
To refuel the tender, a filling station can be installed inside the side garage.

Fuel system diagram:

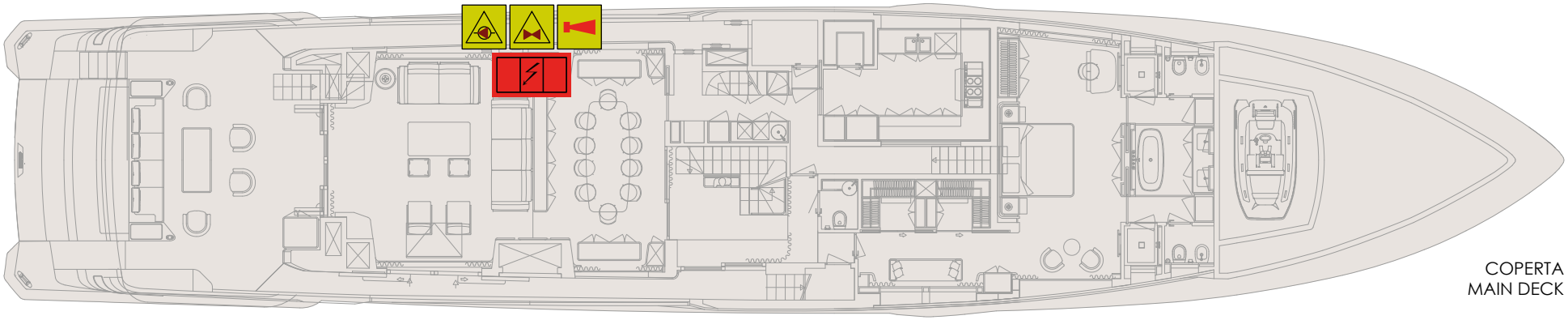


ICONA ICON	DESCRIZIONE DESCRIPTION
	Motori principali Main engines
	Generatori diesel Diesel generator
	Doppio prefiltro gasolio motori Engines diesel double prefilter
	Prefiltro gasolio generatori Generators diesel prefilter
	Pompa trasferimento gasolio Diesel transfer pump
	Bocchettone imbarco gasolio Diesel filling
	Passaparatia stagno Watertight bulkhead penetration
	Passaggio a ponte stagno Watertight deck penetration
	Scarico fuoribordo Overboard discharge
	Valvola a sfera Ball valve

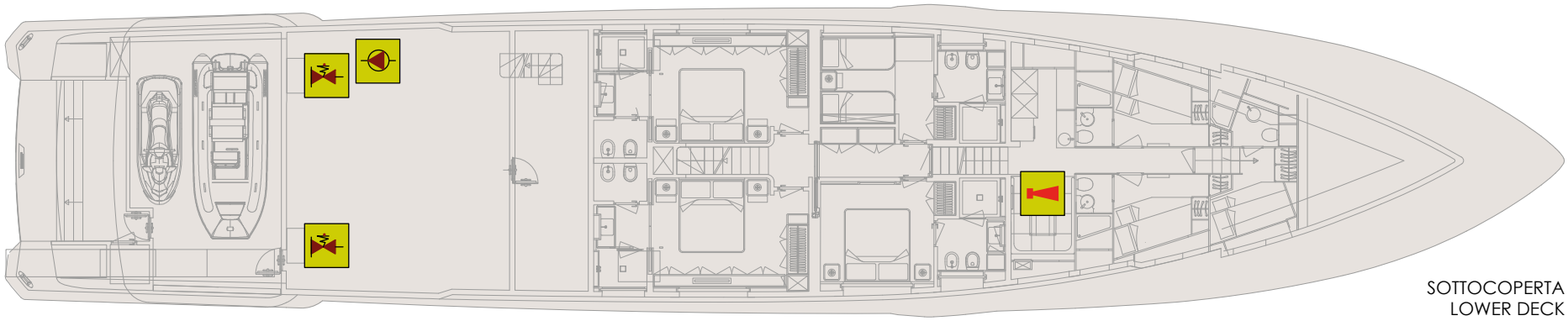
ICONA ICON	DESCRIZIONE DESCRIPTION
	Valvola di non ritorno Non return valve
	Valvola a scatto flangiata Flanged remote controlled valve
	Stazione di rifornimento garage (optional) Garage filling station (optional)
	Allarme di alto livello High level alarm
	Sensore di livello Level sensor
	Tubo trasferimento-alimentazione carburante Transfer-feeding fuel pipe
	Tubo sfiato aria Air vent pipe
	Tubo imbarco carburante Fuel filling pipe
	Tubo scarico morchie Sludge discharge pipe



PONTE SUPERIORE
UPPER DECK



COPERTA
MAIN DECK



SOTTOCOPERTA
LOWER DECK

ICONA ICON	DESCRIZIONE DESCRIPTION
	Sirena allarme Alarm siren
	Impianto filtraggio gasolio 400V AC (optional) Diesel filtration system 400V CA (optional)
	Controllo remoto impianto filtraggio gasolio Remote control for diesel filtration system

ICONA ICON	DESCRIZIONE DESCRIPTION
	Valvole intercettazione carburante Cutoff fuel valves
	Controllo remoto valvole intercettazione Remote control for cutoff valves
	Pannello emergenza Emergency switchboard

7.6.1 Fuel boarding

The boarding fuel takes place by means of suitable openings present on the side walk.

The release of fuel can take place during refuelling operations, if the tank is already practically full.

The fuel that flows out from the duct of embarkation is collected in a tank from a suitable capacity, which in turn will automatically will drain into the onboard fuel tank through the return conduit.

CAUTION

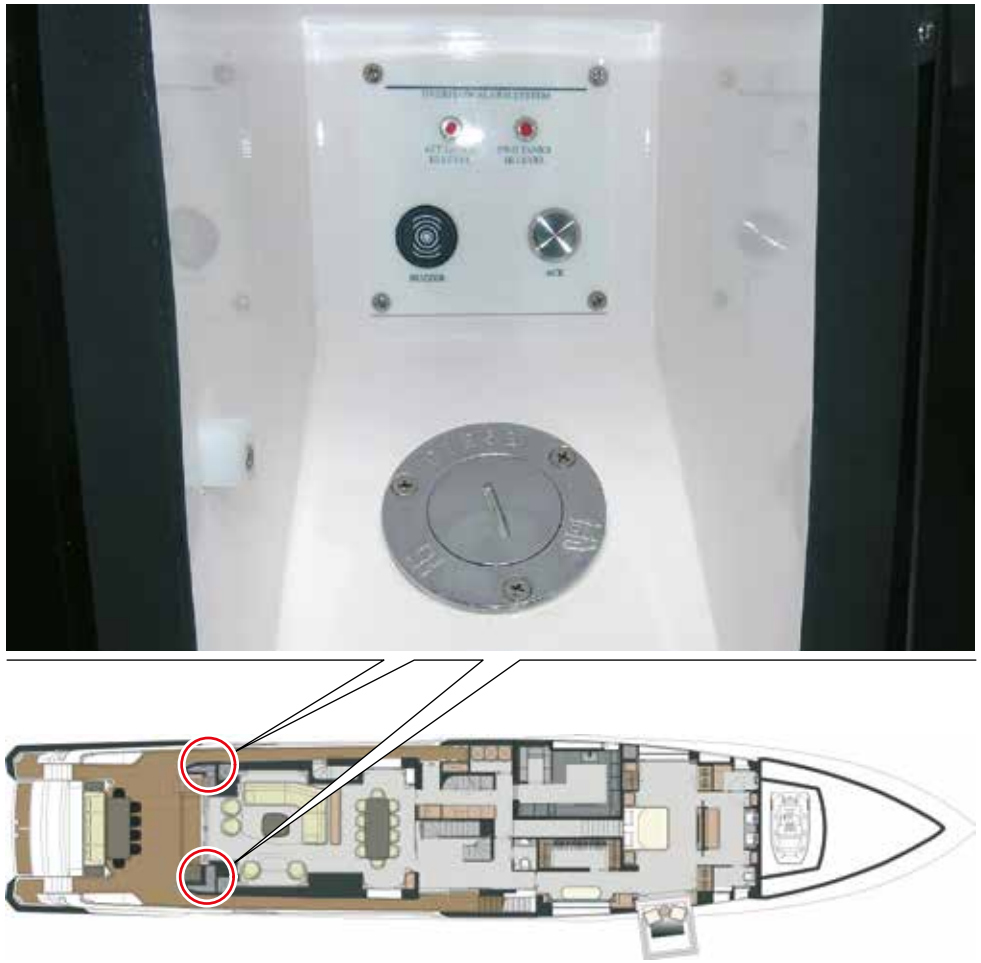
The boarding cap presents the "DIESEL" indication in order to avoid the accidental intrusion of different liquids. Filling lines pressure must be kept constantly under 0.3bar during bunkering operation.

CAUTION

Stop the engine during refuelling.

CAUTION

Before filling, sprinkle with fresh water teak to avoid being soiled with fuel.



7.6.2 Fuel quality

For the good performance of the engines, the good quality of the fuel is of primary importance.
Therefore, we recommend observing the following indications.
The fuel should be purchased from reliable high sale filling stations, both for the quality and for a probable short stay of the fuel inside the shore tank.

Fuels in line with:
- European standard EN590
- DIN EN 590 (Germany)
- ÖNORM EN 590
- ASTM D975 No. 1D (USA)
- BS 2869 Part 1 Class A 1 (United Kingdom)
- BS MA 100 DMX (Marine Diesel Fuel)

are suitable for powering the engines.

WARNING
Every marina or harbour are equipped with dedicated areas for the disposal of toxic waste. It is recommended not to scatter waste that can contaminate the environment (such as used oil, fuel, oily liquids, batteries, etc.).
When working in the engine room, switch off the magneto-thermal switches to the bilge pumps, to prevent accidental discharge of fuels, lubricants and other liquids.

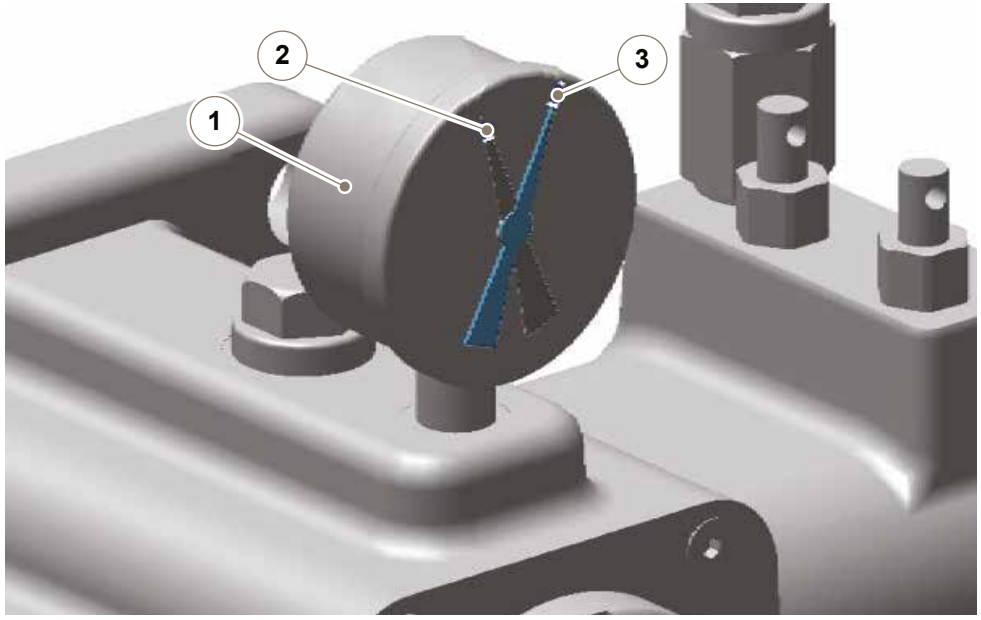
The tanks have to be periodically drained and cleaned, to avoid the formation of possible build-ups.
Thanks have to be kept full as long as possible, especially during long stays, to avoid the formation of condensate, which may facilitate the formation of oxide or oxidation in the tubes.

WARNING
For the type of fuel to be used, follow the manufacturer's recommendations. Diesel engines require very clean fuel. Keep filters clean.

7.6.3 Water/fuel separator filters for engines

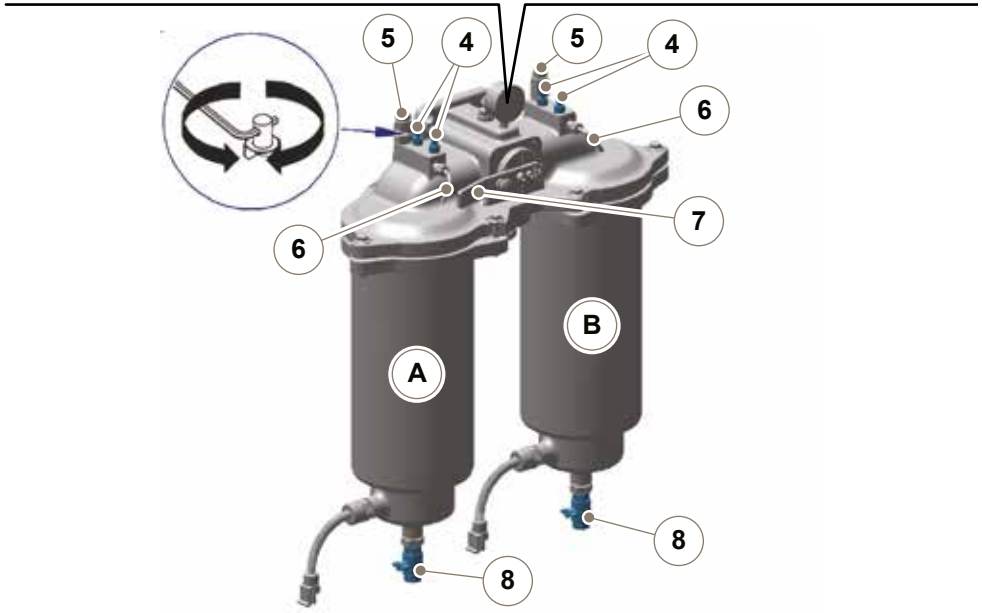
Differential pressure – recording of indicator instrument with double switchable filter:

1. When the new cartridge is put into service, make the recording index (**2**) coincide with the pressure indicator (**3**) on the pressure indicator device (**1**);
2. Check the differential pressure as follows:
   - At full load or at rated engine power, read the pressure on the indicator instrument (**1**);
   - If the differential pressure between the indicator pointer (**2**) and the pressure indicator (**3**) is greater than or equal to 0.3 bar, wash the filter cartridge in service.



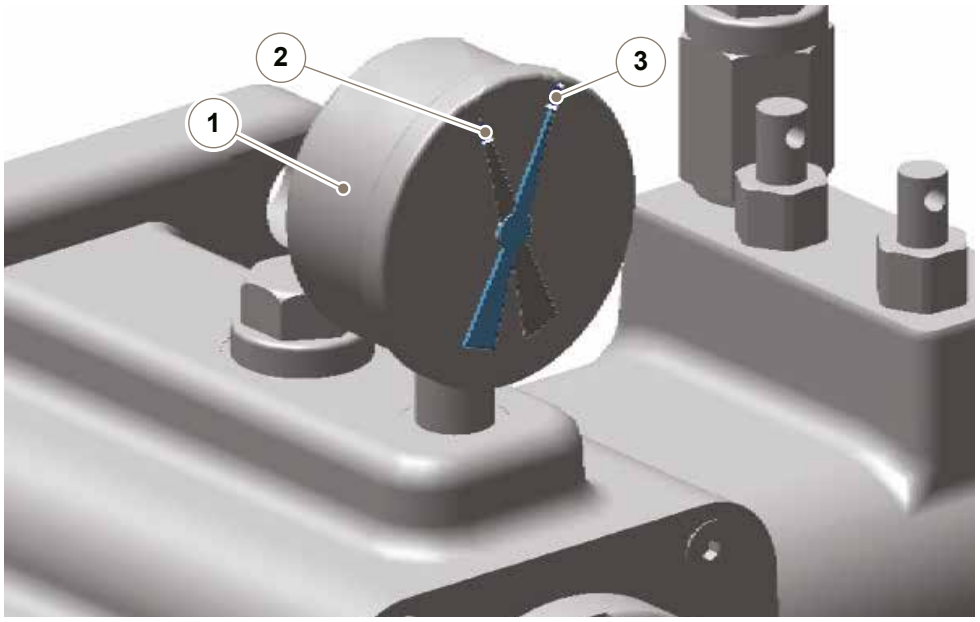
Drainage of the fuel pre-filter with double switchable filter:

1. Disable the filter to be drained (**A**) or (**B**) by turning the handle (**7**) towards the desired filter;
2. Loosen the vent valve (**4**) of the filter from which you wish to drain the condensate;
3. Open the drain valve (**8**) of the filter from which you wish to drain the condensate;
4. Drain the water and impurities from the filter until clean fuel comes out;
5. Close the drain valve (**8**) opened previously;
6. Connect the feed pump to the filling fitting (**5**) on the suction side of the filter;
7. Open the vent valve (**4**) and top up the fuel until fuel leaks from the vent pipe (**6**);
8. Close the vent valve (**4**);
9. Slightly turn the handle (**7**) (about 30°) and open the vent valve(s) (**4**), until fuel comes out of the vent pipe (**6**);
10. Close the vent valve (s) (**4**);
11. Turn the handle (**7**) to the deactivated drained filter position.



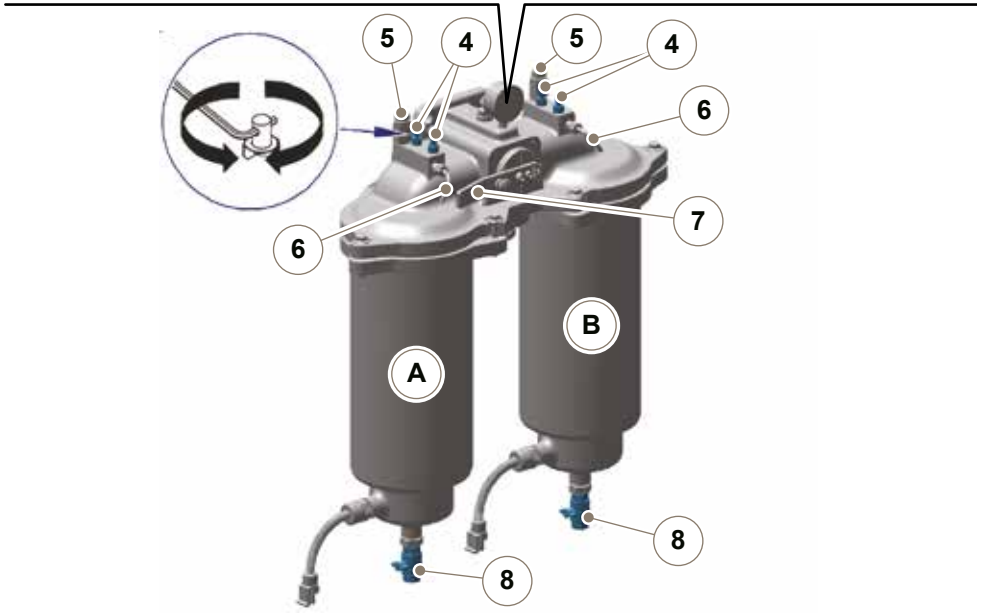
Rinsing of the fuel pre-filter with double switchable filter:

1. Disable the filter to be drained (**A**) or (**B**) by turning the handle (**7**) towards the desired filter;
2. Loosen the vent valve (**4**) of the filter to be rinsed;
3. Open the drain valve (**8**) and drain the fuel completely;
4. Close the drain valve (**8**) opened previously;
5. Close the vent valve (**4**).



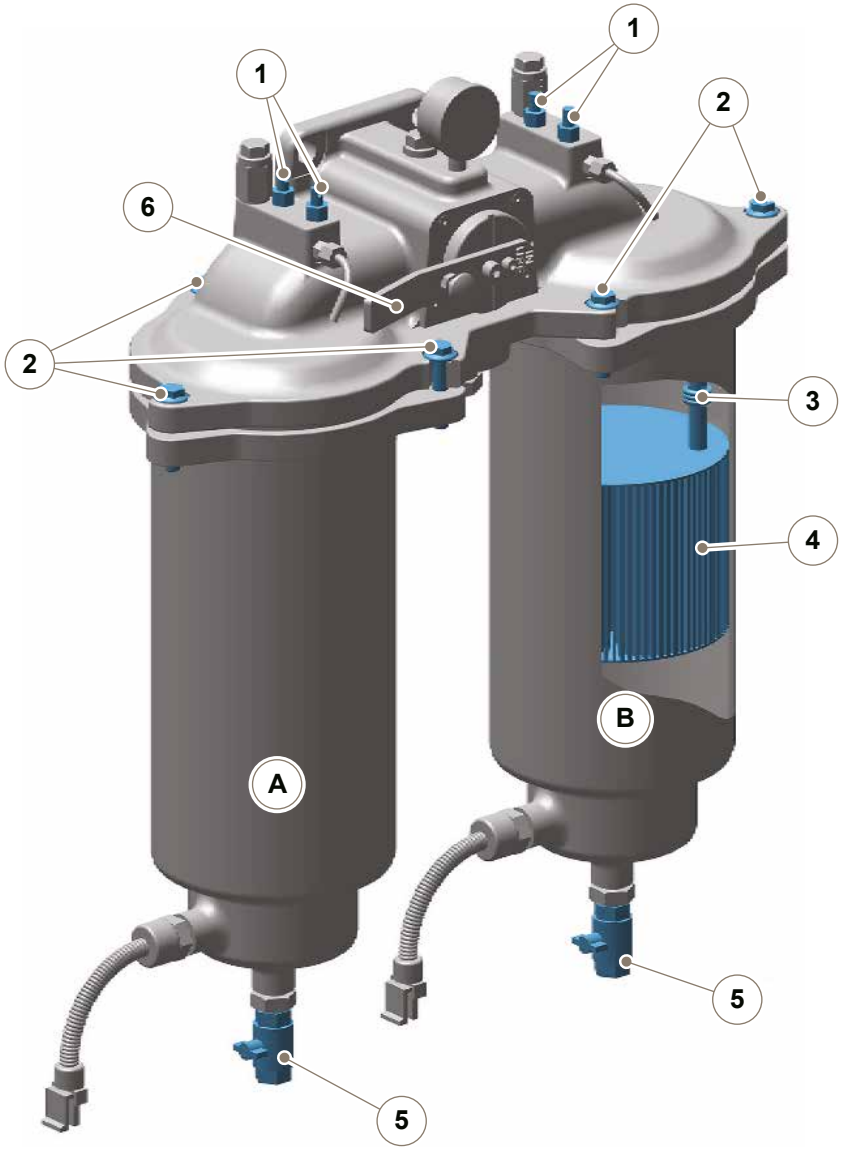
Refilling of the fuel pre-filter with double switchable filter:

1. Turn off the engine making sure to prevent any unintentional ignition;
2. Connect the feed pump to the filling fitting (**5**) on the suction side of the filter;
3. Open the vent valve (**4**) and top up the fuel until fuel leaks from the vent pipe (**6**);
4. Close the vent valve (**4**);
5. Slightly turn the handle (7) (about 30°) and open the vent valve(s) (**4**), until fuel comes out of the vent pipe (**6**);
6. Close the vent valve (s) (**4**);
7. Turn the handle (**7**) to the deactivated drained filter position;
8. Check the differential pressure as follows:
   - At full load or at rated engine power, read the pressure on the indicator instrument (**1**);
   - If the differential pressure between the indicator pointer (**2**) and the pressure indicator (**3**) is greater than or equal to 0.3 bar, wash the filter cartridge in service.
9. If rinsing has not resulted in an improvement in differential pressure, replace the filter cartridge.



Replacing the fuel pre-filter cartridge with a switchable double filter:

1. Disable the filter to be drained (**A**) or (**B**) by turning the handle (**6**) towards the desired filter;
2. Loosen the vent valve (**1**) of the filter to be replaced;
3. Open the drain valve (**5**) and completely drain the fuel, water and impurities contained therein;
4. Close the drain valve (**5**);
5. Unscrew and remove the filter retaining screws (**2**);
6. Remove the elastic seal (**3**) and the filter cartridge (**4**);
7. Insert the new filter cartridge (4) and the elastic seal (**3**);
8. Refill the filter with clean fuel;
9. Replace the seal of the filter cover;
10. Place the filter under the cover and tighten the sealing screws (**2**);
11. Connect the disconnected filter;
12. Tighten the vent valve (**1**) after the fuel leaks;
13. Record the differential pressure indicator instrument as indicated above.

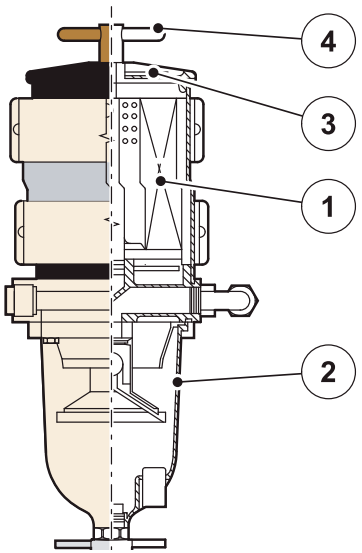


7.6.4 Water/fuel separator filters for generators

Maintenance and water drain from collection tank

Bleed frequency or the replacement of the filter element **(1)** are determined by the contamination level of the fuel.
Check or drain the water collection tank **(2)** daily.
The collection tank must be drained before containments reach the engine.

- After having placed a capacious collection container underneath it, open the drain to discharge containments.
- Remove the cover **(3)** and fill with clean fuel.
- Close the cover and tighten the T-handle **(4)** firmly by hand.



Replacement of filter element

- Replace the element according to the schedule recommended by the manufacturer or if a lack of power is noticed. Power loss indicates that the element is indeed clogged. Other elements like a too full tank or excessively contaminated fuel can also clog the filter.
- Close the seacock.
- Remove the cover.
- Remove the element by holding the handle and by pulling lightly forward with a twisting movement.
- Insert a new filter having the same filtering features of the one replaced.
- Check and, if necessary, replace the filter cover gasket. Apply a layer of clean fuel or engine oil on the seal before reinstalling it, insert the new element with a slow twisting movement downwards.
- Fill with clean fuel, then replace the cover. Tighten the T-handle manually and reopen the valve.
- Start the engine and ensure there are no leaks. Repair any leaks with engine shut off.

Troubleshooting procedure

The main reason for a poor start-up or lack of power is the result of a clogged filter or of an air leak in the fuel system.

If the device does not prime or does not hold the idle run, or air bubbles are visible through the check glass, first of all check the cover by means of the T-handle and vent it, if it had not been closed properly.

Then check all connections and lines and make sure that no fuel line is clogged with contaminants.

If the fuel tank is equipped with an incorporated filter, check for its possible clogging. If the problem persists and the filter element is new, address to Dealer.

7.6.5 Fuel system maintenance

COMPONENT	MAINTENANCE	NOTES AND CAUTIONS
Fuel tank	Purging (at least every two to three supplies and at least once every three months)	As indicated in the next sequence.
Filters water separators / fuel for engines	Cleaning and replacement of the water filter more download	As indicated in the previous sequence.
Filters fuel / water separators for generators	Maintenance and unloading water Replacing the filter element Fault detection procedure	As indicated in the previous sequence.

Fuel tank discharge:
The tank is equipped with a visual indicator for the fuel level to display in the engine room of the actual level.

The geometry of the tank allows the decanting of any impurities and water present in the fuel.
In order to proceed to the water drain and any impurities loaded together with the fuel, it is necessary to wait a few hours, after refuelling in such a way that the particles in suspension, have the time to settle.

During the long periods of inactivity yacht is recommended, when the tank is empty, remove the bunkers on board during refuelling.

WARNING
Internal cleaning of the tank is an extraordinary transaction that must be carried out by specialized personnel. Contact Support CUSTOM LINE to receive proper support.

During the replacement of the flange to ensure that the nuts are tightened present in adequate and uniform manner in order to avoid the leakage of fuel vapours. Also check the good condition of the O-ring.

NOTE
During this operation, the staff must always be present as it may cause spillage of fuel in the engine room.

MAINTENANCE
Periodically check the correct operation of the valves.
At least every three months to verify that there are no leaks.
1 At least once every three months to make bleed the tank.
At least once every two years to make a complete cleaning of the tank; in any case verify the bleed as a function of the quality of the performed supplies.

WARNING
While cleaning the inside of the tank is good to aerate the environment and long wear all the protections necessary to avoid injury from gas fumes.

ENVIRONMENT
Handle and dispose of the water mixed with fuel in accordance with the laws in force. Use only approved disposal procedures and, if in doubt, contact the Harbour.

CAUTION
It is advisable to periodically empty and clean the tank, get help CUSTOM LINE.
Also it remembers that the diesel fuel used again to be filtered.

WARNING

The bilges of the engine room must be kept clean, in this way we can identify more easily the losses or leakages of fuel or oil from the engines and from the generator. If this happens, you must stop the engine and let it cool and then repair, if possible, for the loss. Finally clean the bilges.

ENVIRONMENT

It is forbidden to discharge bilge water mixed with oil or fuel into the sea, as it can cause serious pollution.
Periodically check the level of any oily water present in the collection tanks located below the engine, in the case where the level is close to that of leak in the bilge off the switches of the breakers of the bilge pumps to prevent accidental spillage until all ' exhaustion of the same with media comply with current regulations for environmental protection.
During maintenance operations in the engine room it is required off the switches of the breakers of the bilge pumps avoiding accidental spillage.

7.7 MANOEUVRING THRUSTERS SYSTEM

The thruster is a very simple and robust accessory, but requires some attention:

- The manoeuvring thrusters should be used at very low speed, or without rudder; at higher speed, more correct reactions are obtained with the staggered use of the inverters;
- Whenever there is a chance to lift the yacht, check the condition of each thruster, the protective anode and the fastening system.

MAINTENANCE

At least once a week check that it is working properly.
At least once every 3 months check the condition of the protective sacrifical anodes plates and replace if necessary.
Add oil when necessary.

NOTE

For further information on use and maintenance, please refer to the manufacturer's manual.

Using the manoeuvring thrusters system

After checking that the motor battery breaker is in the ON position, that the battery breaker is extracted (ON) and activating the magneto-thermal switch on the general electrical panel, enable the relative controls through the monitoring system and press the START button on the joystick control panel, from which you intend to manoeuvre. The indicator light that illuminates indicates that the equipment is ready for use. The thruster engines are controlled via the control joysticks.

WARNING

When you are finished using the thruster, press the STOP button on the control panel.

CAUTION

For the duration of continuous use of the manoeuvring thruster, refer to the operating manual supplied by the Manufacturer.

CAUTION

Always switch off the control when the manoeuvring thruster is not in use.

DANGER

During the bow thruster operation, pay attention to possible swimmers or small boats which may be close to the thruster openings.
Do not test the thruster when the yacht is outside water, unless you are sure the workers are at safety distance from the thruster tunnel.

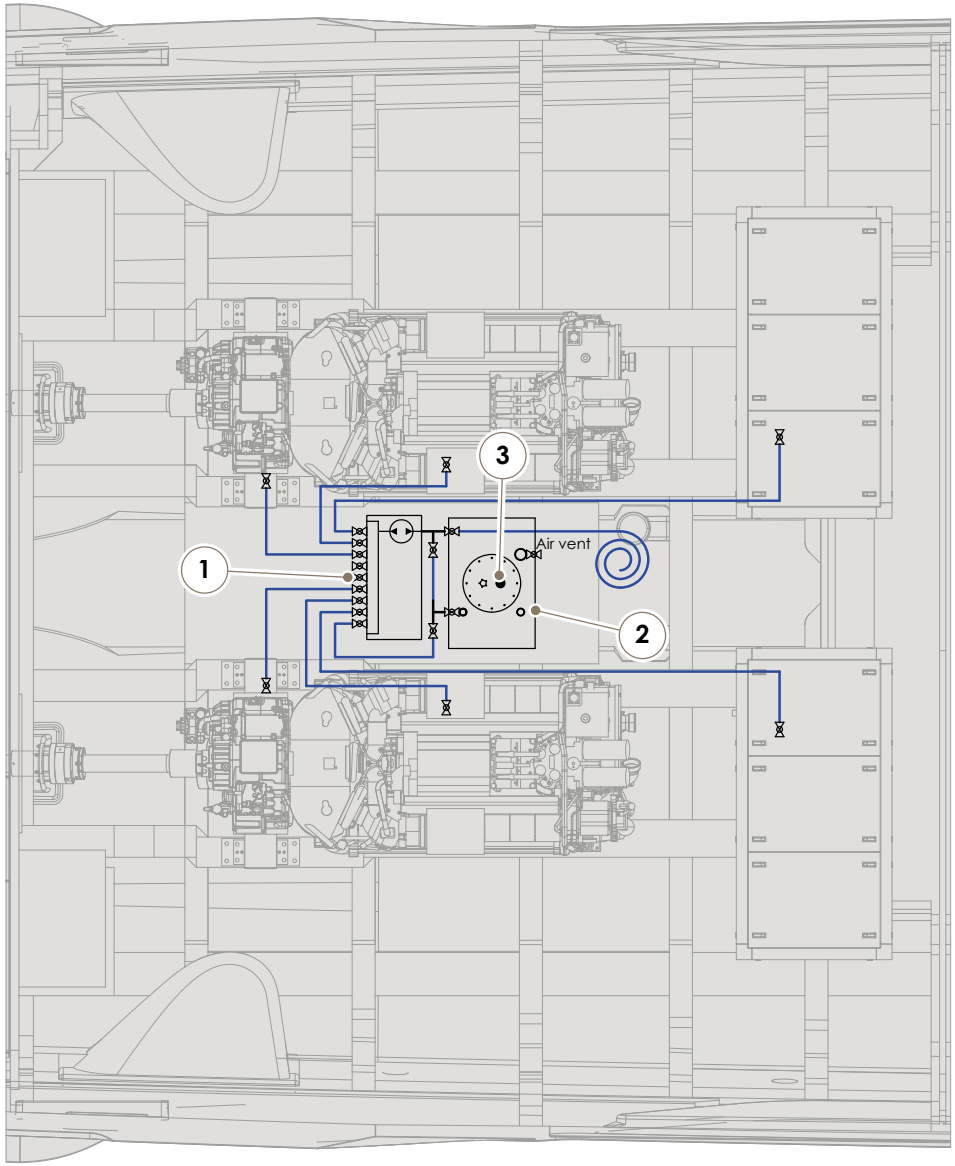
DANGER

Always stop the operating thruster before carrying out checks or maintenance.

CAUTION

Never operate the thruster for more than one second when the yacht is being pulled dry, as this may seriously damage the system.

7.8 OIL CHANGE SYSTEM



SOTTOCOPERTA
LOWER DECK

ICONA ICON	DESCRIZIONE DESCRIPTION
1	Sistema cambio olio Oil change system
2	Serpatoio olio Oil tank
3	Sonda di libello Level sensor

CUSTOM LINE 140’

8

Yacht steering systems

8.1 STEERING SYSTEM

The power assisted steering system has been designed to make steering easier during navigation and to improve the safety conditions of the system.

The system consists of an axial piston pump mechanically connected to the rudder wheel in the main helm station of the upper deck.

The helm station pump is electronically connected to an electronic control unit, which in turn controls the operation of two electro-hydraulic control units that move the rudder actuators.

The solenoid valve block can also be used as an interface for the autopilot.
On the control valve unit there are some shockproof protection valves.

Along the circuits, between the pump with axial pistons and the electro-hydraulic control unit, there are the non-return valves, preventing the back-flow of the control fluid and bal valve for emergency situation. It is possible to check the oil low level in the tank of the electro-hydraulic control unit, by means of a visual gauge.

In wheelhouse is located the steering system control panel, through which it is possible to activate/stop steering pump 1 in emergency conditions.
In wheelhouse it is also the emergency button to deactivate the steering system signaled by a red light.

The main system can operate in three different modes: POWER-STEERING, AUTOPILOT and MANUAL; the switching over from one condition to another has been extremely simplified.

Power assisted steering
The control unit must be supplied. By turning the steering wheel the power steering cylinder is set under pressure; this pressure generates a signal moving the power cylinder. The power steering allows manoeuvring the rudders with less effort and less revolutions number of the steering wheel.

Steering with autopilot
The control unit must be supplied. When setting the wished course, the autopilot actuates the rudder cylinder through the solenoid valves of the control unit.

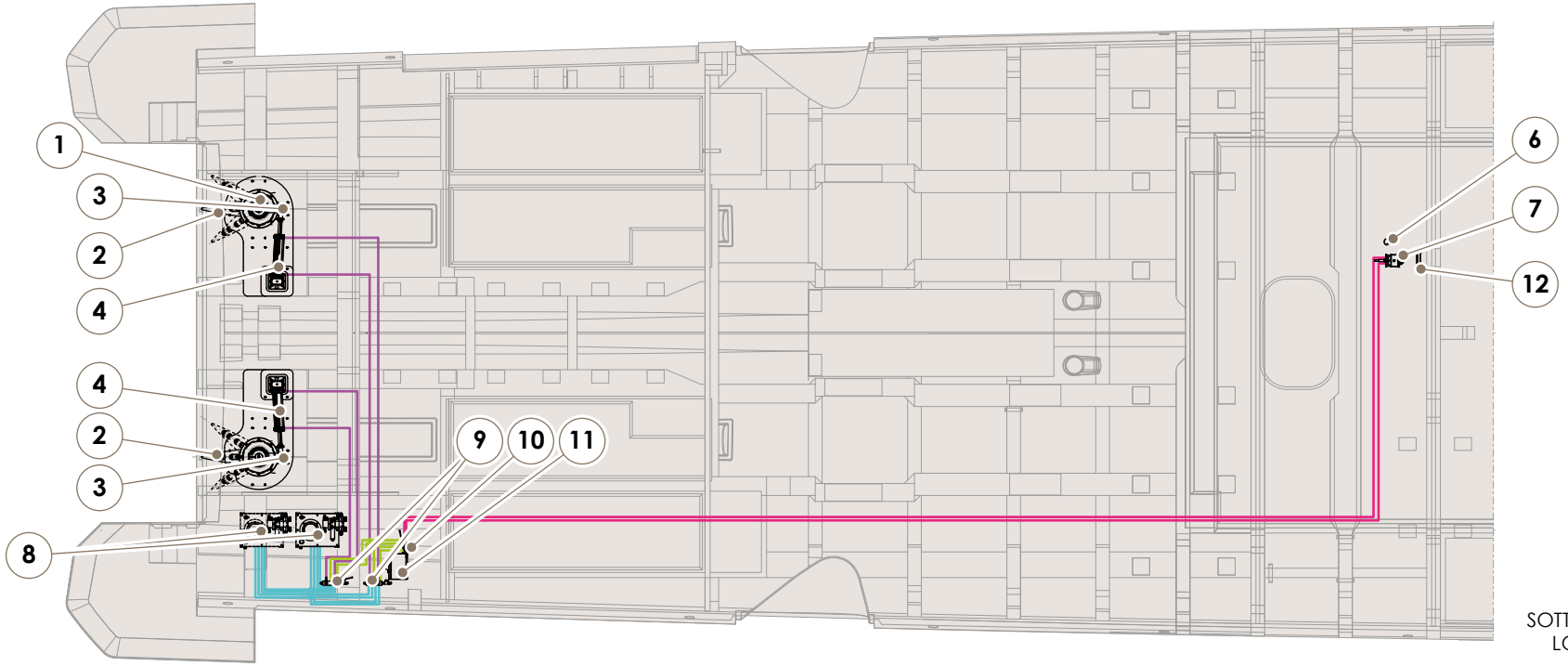
Manual steering
The electro-hydraulic control unit of the steering is not supplied, oil reaches directly the actuator cylinder of the pump; when steering manually, about 20 steering wheel revolutions are needed for a complete rudders stroke from end to end.

Emergency navigation condition
Navigation in emergency mode is possible in case of a fault (fault of the electro-hydraulic control unit, cut-off of main hydraulic line, etc).
The emergency pump is located in the system room and is hydraulically connected to the starboard cylinder.

CAUTION
The position of the sensor is adjusted by CUSTOM LINE; unauthorized crew is not allowed to tamper with it.

NOTE
For further information on use and maintenance, please refer to the manufacturer's manual.

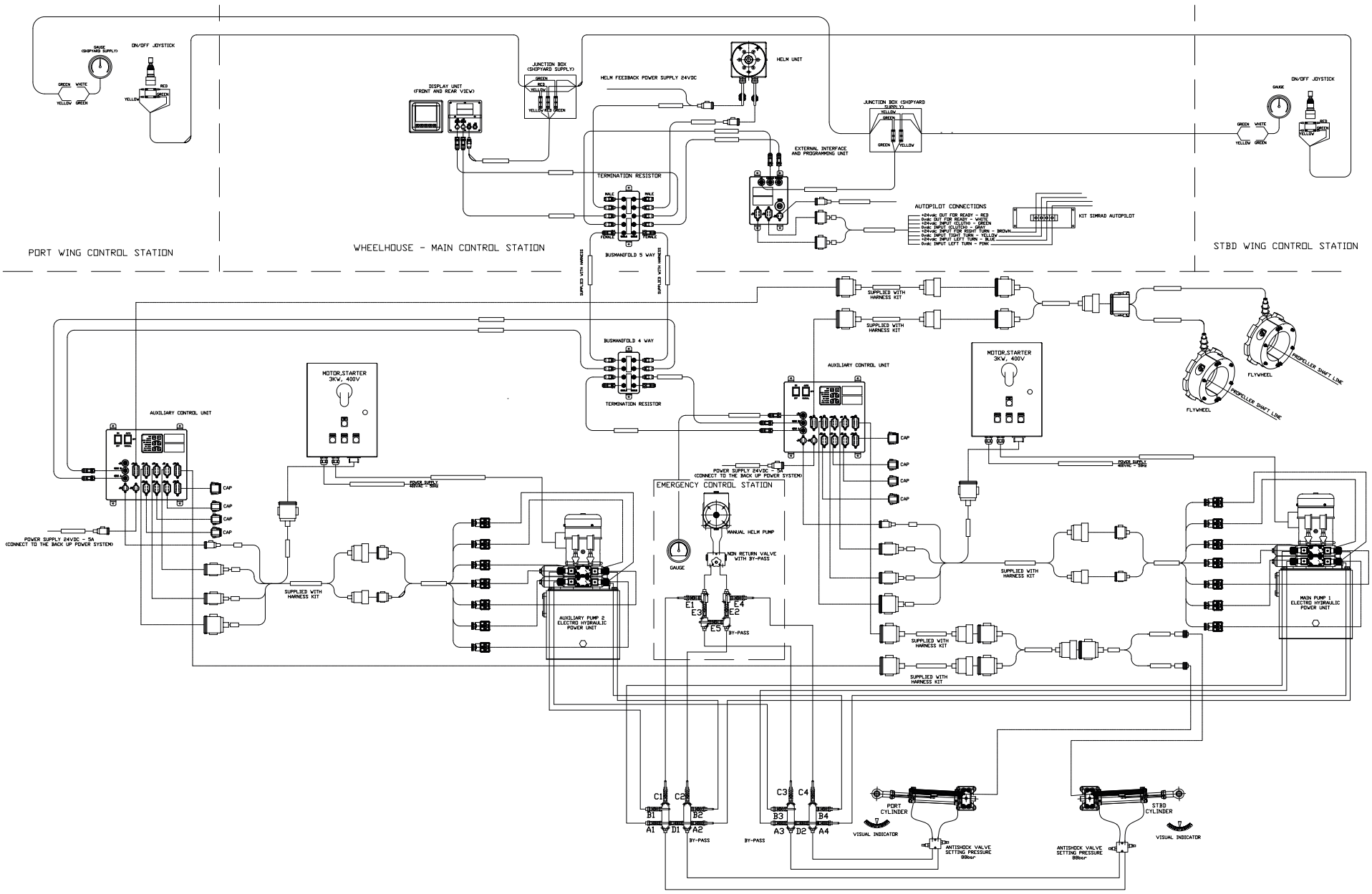
Steering system diagram:



ICONA ICON	DESCRIZIONE DESCRIPTION
1	Losca timone Rudder hole
2	Timone Rudder
3	Barra timone Rudder bar
4	Timoneria Timoneria
6	Indicatore angolo di barra Rudder angle indicator

ICONA ICON	DESCRIZIONE DESCRIPTION
7	Pompa timoneria emergenza Emergency steering pump
8	Centralina timoneria Steering control unit
9	Valvole by-pass timoneria Steering by-pass valves
10	Valvole by-pass timoneria Steering by-pass valves
11	Quadro avviatore timoneria Steering control panel

ICONA ICON	DESCRIZIONE DESCRIPTION
12	Quadro timoneria Steering control panel


PORT WING CONTROL STATION
WHEELHOUSE - MAIN CONTROL STATION
STBD WING CONTROL STATION
ON/OFF JOYSTICK
DISPLAY UNIT (FRONT AND REAR VIEW)
JUNCTION BOX (SHIPYARD SUPPLY)
HELM FEEDBACK POWER SUPPLY 24VDC
HELM UNIT
EXTERNAL INTERFACE AND PROGRAMMING UNIT
TERMINATION RESISTOR
BUSMANIFOLD 5 WAY
BUSMANIFOLD 4 WAY
AUTOPILOT CONNECTIONS
KIT SIMRAD AUTOPILOT
SUPPLIED WITH HARNESS KIT
MOTOR,STARTER 3KV, 400V
AUXILIARY CONTROL UNIT
POWER SUPPLY 24VDC - 5A (CONNECT TO THE BACK UP POWER SYSTEM)
EMERGENCY CONTROL STATION
MANUAL HELM PUMP
NON RETURN VALVE WITH BY-PASS
GAUGE
BY-PASS
AUXILIARY PUMP 2 ELECTRO HYDRAULIC POWER UNIT
MAIN PUMP 1 ELECTRO HYDRAULIC POWER UNIT
FLYWHEEL
PROPELLER SHAFT LINE
PORT CYLINDER
STBD CYLINDER
VISUAL INDICATOR
ANTISHOCK VALVE SETTING PRESSURE 88bar

BALL VALVE POSITION									
Valve name	Main pump 1 normal operation	Main, stbd cylinder failure	Main, port cylinder failure	Auxiliary pump 2 operation	Aux, stbd cylinder failure	Aux, port cylinder failure	Manual pump steering system **	Manual pump with stbd cylinder failure **	Manual pump with port cylinder failure**
A1	OPEN	CLOSED	OPEN	OPEN	CLOSED	OPEN	CLOSED***	CLOSED***	CLOSED***
A2	OPEN	CLOSED	OPEN	OPEN	CLOSED	OPEN	CLOSED***	CLOSED***	CLOSED***
A3	OPEN	OPEN	CLOSED	OPEN	OPEN	CLOSED	CLOSED***	CLOSED***	CLOSED***
A4	OPEN	OPEN	CLOSED	OPEN	OPEN	CLOSED	CLOSED***	CLOSED***	CLOSED***
B1	OPEN	CLOSED	OPEN	OPEN	CLOSED	OPEN	CLOSED***	CLOSED***	CLOSED***
B2	OPEN	CLOSED	OPEN	OPEN	CLOSED	OPEN	CLOSED***	CLOSED***	CLOSED***
B3	OPEN	OPEN	CLOSED	OPEN	OPEN	CLOSED	CLOSED***	CLOSED***	CLOSED***
B4	OPEN	OPEN	CLOSED	OPEN	OPEN	CLOSED	CLOSED***	CLOSED***	CLOSED***
C1	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	OPEN	CLOSED	OPEN
C2	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	OPEN	CLOSED	OPEN
C3	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	OPEN	OPEN	CLOSED
C4	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	OPEN	OPEN	CLOSED
D1	CLOSED	OPEN*	CLOSED	CLOSED	OPEN*	CLOSED	CLOSED	OPEN*	CLOSED
D2	CLOSED	CLOSED	OPEN*	CLOSED	CLOSED	OPEN*	CLOSED	CLOSED	OPEN*
E1	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	OPEN	OPEN	CLOSED
E2	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	OPEN	CLOSED
E3	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	OPEN
E4	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	OPEN	CLOSED	OPEN
E5	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	OPEN	CLOSED	CLOSED

* Open the valve until the rudder will be at zero position then close the valve.
** It is suggested to power off power unit motor control (three way switch on OFF position) when using manual steering system.
*** We suggest to close also these ball valve when using manual steering, but it is not strictly necessary for the correct operation of the manual steering itself.

8.2 INTERCEPTORS SYSTEM

The yacht is equipped with interceptors, that can be driven from the helm station. Each interceptor is driven by an electric servomotor.

They allow varying both the longitudinal and the transversal trim of the yacht during navigation.

It is important to become familiar with the use of the interceptors, because their correct use is extremely important both for performance and comfort improvement.
Usually, when you lower the interceptors, also the bow lowers down; while if you raise them, you raise the bow.

A correct position of the interceptors allows obtaining a steady and ideal trim, which can increase speed and reduce consumption.

Under particular navigation conditions when, due to lateral sea forces, sea and wind currents, the yacht reaches an inclined trim, in order to restore normal conditions and to keep the course, it is necessary to act on the rudder wheel or to use the interceptors in an offset way.

WARNING
The use of the interceptors is quite normal during navigation, in order to make it more comfortable and to improve the yacht's performance.

CAUTION
Raise the interceptors completely during the reverse gear otherwise they might get damaged.

By the actuation of one of the buttons on the panel of the main helm station, the control unit receives an electric pulse actuating the motor. The motor rotates in the chosen direction and therefore determines the descent or ascent of the interceptors.

By pressing the button to other position, you control the opposite motor movement. Each button controls the movement of a interceptors.

It is possible to view, through the control panel on the helm station, the extraction of the interceptors, measured by means of a position transducer placed on each of them.

Some advice will prove useful to familiarize with the interceptors:

- After the hull is brought in gliding way position, adjust interceptor position to find the most favourable angle for navigation.
- At high speed it is advisable not to operate the interceptors at the same time, one up and one down, but carry out these operations separately to avoid sudden lurching; it is nevertheless possible to operate them together in the same direction.
- With calm sea, the best interceptors position is the one allowing maximum speed with minimum yacht resistance.
- With rough sea at bow, lowered interceptors will allow the yacht to bump less and to navigate more comfortably even if speed will be decreased.
- With rough sea "at the stern", the interceptors that are "up" will tend to raise the bow, thereby avoiding unpleasant nose-diving;
- With side wave motion or asymmetrical side load, best stability is obtained with staggered interceptors.
- In case the yacht is not underway, raise the interceptors completely (withdrawn rams).

CAUTION

The interceptors, like the rudder, can generate sudden direction changes of the yacht, if actuated too fast. It is therefore necessary to test the reaction of these devices at open sea and with great care.

CAUTION

Always make sure that the passengers are seated before undertaking adjusting manoeuvres on the flaps, especially if navigating at high speed.

NOTE

For further information on use and maintenance, please refer to the manufacturer's manual.

8.3 GYROSCOPIC STABILIZERS SYSTEM

To reduce the annoying effect of the wave-induced rolling motion, a system has been installed and it consists of 4 gyroscopic stabilizers capable of generating a rotation equal and opposite to that of the waves. The system combines, in fact, a significant decrease in rolls, both when the yacht is stationary and at sea, with low energy consumption that does not compromise the quality of life on board and leave the performance unchanged.

Thanks to these very important features, the device can be kept active even during the night to maintain greater comfort by damping, almost entirely, the annoying roll motion.

Gyroscopic stabilisers are based on a known physical principle: a gyroscope tries to maintain its own vertical rotation shaft, parallel to the acceleration of gravity.

When an external cause intervenes to change its position, such as the roll caused by the wave, it is opposed by a rotation on one shaft, perpendicular to the shaft of rotation and to that of the heeling cause.
In the case of gyroscopic stabilizers, the operation generated (roll) is attenuated by the presence of dampers specially calibrated according to each yacht's features.

The system consists of 4 stabilizers positioned centrally in the bilge under the left garage.

NOTE
For further information on use and maintenance, please refer to the manufacturer's manual.

CAUTION
Have the expected PERIODICAL INSPECTION conducted by qualified personnel every two years. Contact CUSTOMER SERVICE for more information.

WARNING
During operation, gyroscopic stabilisers, vibration dampers and their housing become hot. Touching the gyroscopic stabiliser may cause burning during operation.

DANGER
Gyroscopic stabiliser housing is not a solid component. If you lay objects or sit on the gyroscopic stabiliser, it may be damaged.

CAUTION
Gyroscopic stabiliser is not watertight. If it is submerged in seawater, it may be damaged.

8.4 STABILIZING FINS SYSTEM

The fins are wing profiles in all respects and they exploit the speed of the water they meet to create lift on the upper or lower surface, according to the position of the fins with respect to their shaft.
Therefore, according to their check logic, by means of hydraulic actuators, they move in a way which gives an immediate response to the rolling action.
The higher the hull speed, the higher will be the lift created by the fins which will have almost no influence with the yacht stationary.

When leaving the harbour, simply activate the system and this one in a very independent way, monitors the yacht's trim permanently and efficiently, thanks to the stabilizing fins fitted to the hull.

The system adjusts its operation according to speed, sea conditions and wave direction, and of course to the skidding data received from the sensors.
The stabilizing fins of the system are equipped with very sturdy electromechanical mechanisms, able to ensure an effective duration in the time.

In the helm station there is a control panel equipped with a liquid crystal screen on which you can read all the data detected by the sensors, the status of the fins and the system, as well as any alarms in the event of the need for intervention. This yacht is also provided with a Zero Speed system, which enables the operation of the stabilizing fins even with the engines turned off.

NOTE
For further information on use and maintenance, please refer to the manufacturer's manual.

CAUTION
The supply of the stabilizers must always be kept on the main electrical panel, besides if the stabilizing fins are not in use, they must always be kept in central position (see display in the main helm station).

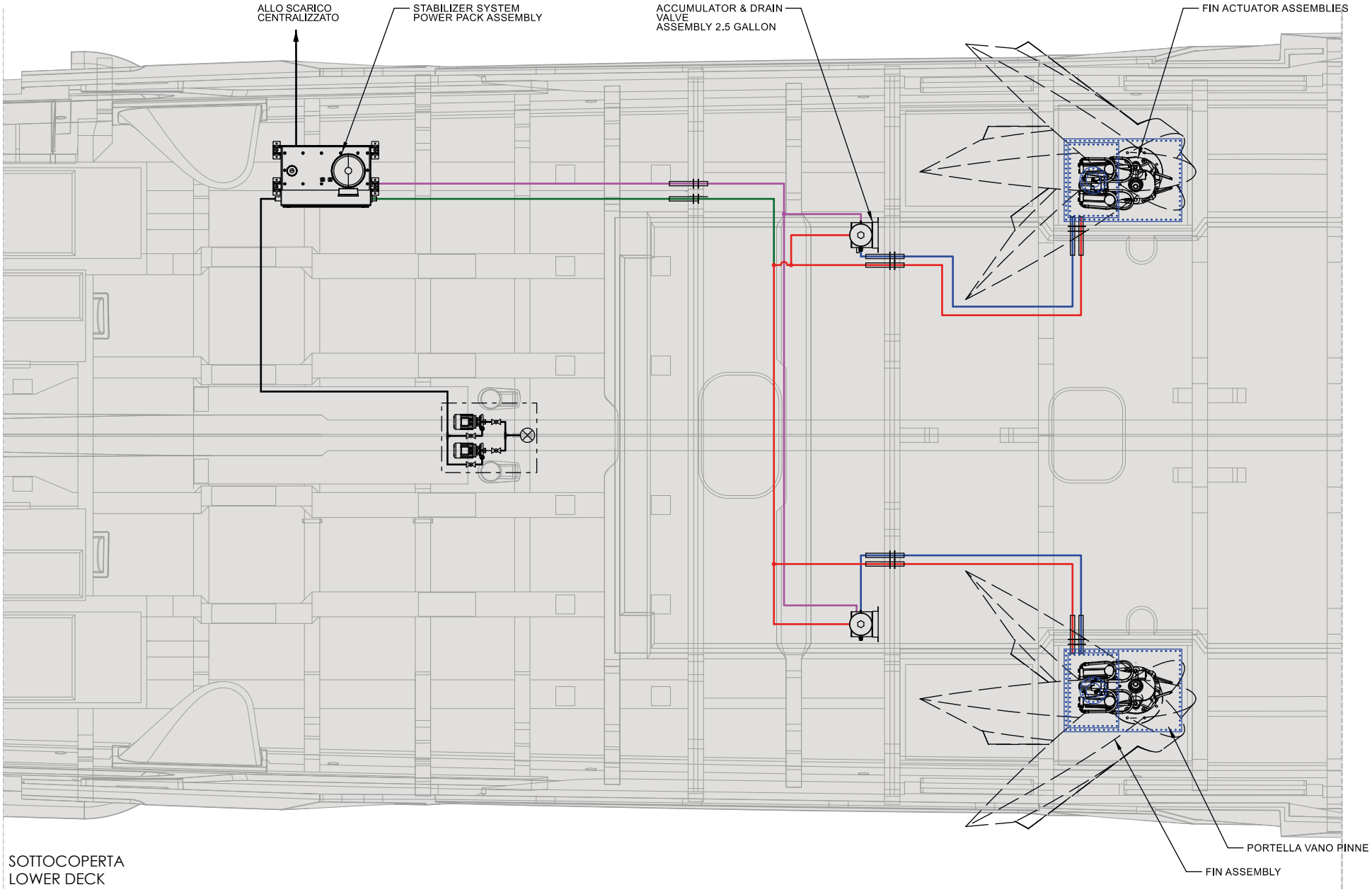
Hydraulic system for stabilizing fins:

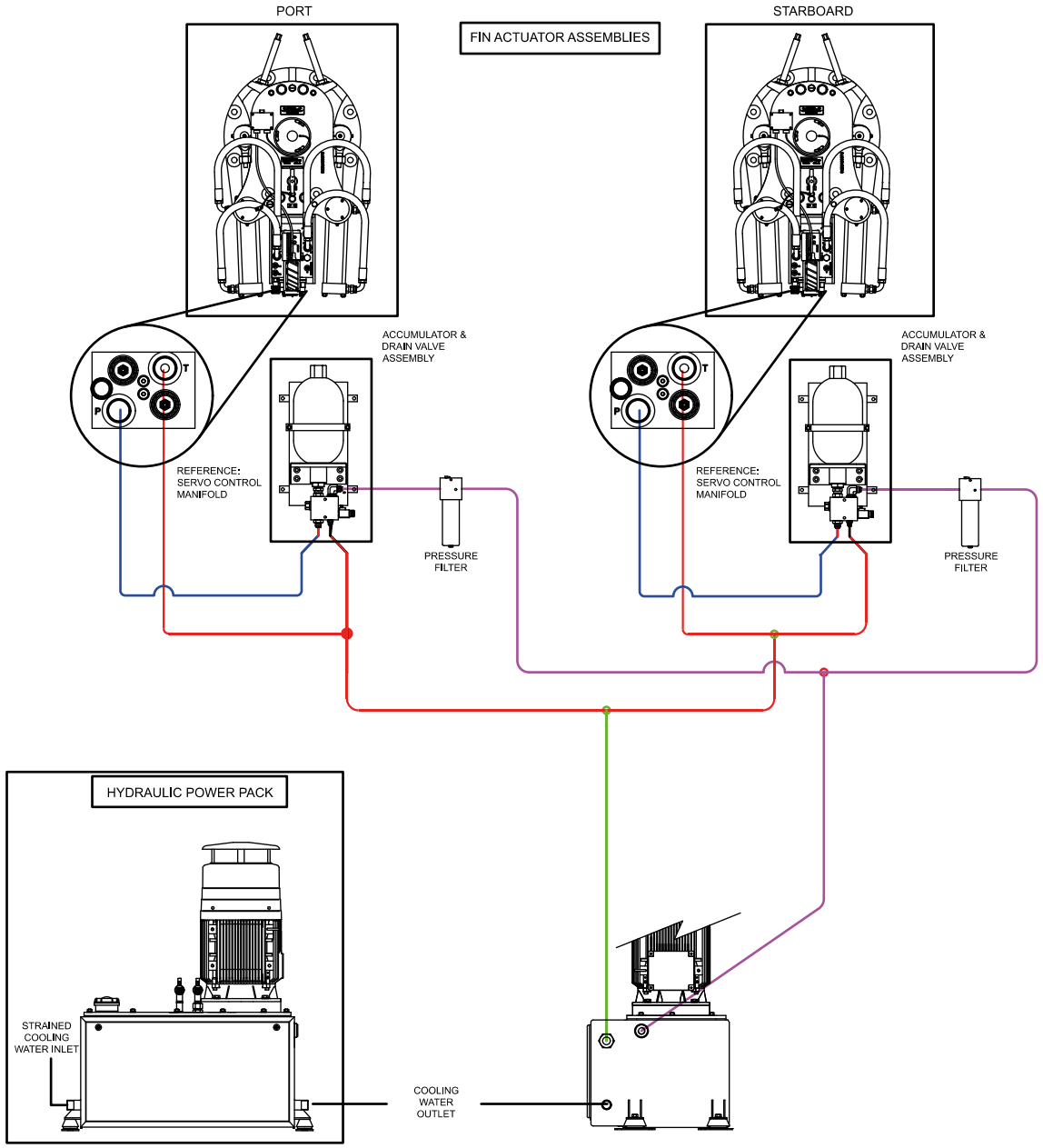
It is an independent system that works through an electro-hydraulic unit, which draws oil from the special tank and then conveys it to two accumulators.

Two lines branch out from the accumulators: one that feeds the stabilizer fin unit and one coming back from it.
In the stabiliser unit, the oil reaches two separate solenoid valve blocks, each of which controls the hydraulic cylinders of each stabilizer.

The electro-hydraulic unit is connected to a heat exchanger that uses sea water to cool the oil in order to keep its temperature constant, a pressure gauge to keep the pressure under control and a visual level indicator.

Stabilizing fins system diagram




PORT
FIN ACTUATOR ASSEMBLIES
STARBOARD
ACCUMULATOR & DRAIN VALVE ASSEMBLY
REFERENCE: SERVO CONTROL MANIFOLD
PRESSURE FILTER
ACCUMULATOR & DRAIN VALVE ASSEMBLY
REFERENCE: SERVO CONTROL MANIFOLD
PRESSURE FILTER
HYDRAULIC POWER PACK
STRAINED COOLING WATER INLET
COOLING WATER OUTLET

CUSTOM LINE 140’

9

Air conditioning and ventilation

9.1 AIR CONDITIONING SYSTEM

The air-conditioning system consists of two air-conditioning units, which can be used either one at a time or simultaneously. The internal heat exchanger with seawater, is capable of delivering both cold air and hot without the use of a water heater (by reversing the operation of the system).

Your yacht is equipped with an air treatment unit.

This unit is used to cool water used as a thermal exchange with the air of the rooms to be cooled down. In winter the inversion of the cooling circuit (by heat pump) allows the water heating instead of the cooling, in this way the rooms get warmed up.

A circulation pump conveys cooled (or heated) fresh water to the fan-coils, until the set temperature is reached.

WARNING

Check that fresh water circulates regularly. Because of a pressure drops or of a long period of inactivity, stop the system and top up water through supply valve until the requested pressure is achieved, this will be indicated by proper pressure switch installed on the unit. After this, close the supply valve.

The entire system is powered at 400V AC by means of a magneto-thermal switch located on the general electrical panel in the control room.

The compressor unit is located on the starboard side of the engine room.

Your yacht is equipped with three air treatment units (ATU).

The unit treats and recirculates the air in the rooms of your yacht.

In general, in the winter season, the ATU is responsible for increasing the temperature and humidity of the air, while in the summer season, it is responsible for decreasing the temperature and humidity of the air.

Every room has air-conditioned independent adjustment via Its Command Panel.

The descriptions and information on the use and maintenance are described in the manual supplied by the manufacturer.

Before starting the system, check the sea-water and circulation pumps for free rotation, by rotating the cooling fan of the electric motor with a screwdriver.

Rotation should be free, in case the pump is locked, do not start, but eliminate troubles first (dirt, rust, scraps, etc.). Check that sea-water intake and outlet valves are both open.

Power the chiller units and fan coils using the switches on the main electrical panel in the control room.

CAUTION

On the main electrical panel there are two magneto-thermal switches AIR CONDITIONING and FANS FAN-COIL, both must be in the ON position to operate correctly the air conditioning system.

It is advisable to measure the power consumption of the pumps and compare it with the nameplate data.

The group operates normally only when the sea water circulation and the treated water is correct. After a few seconds, the compressor will start.

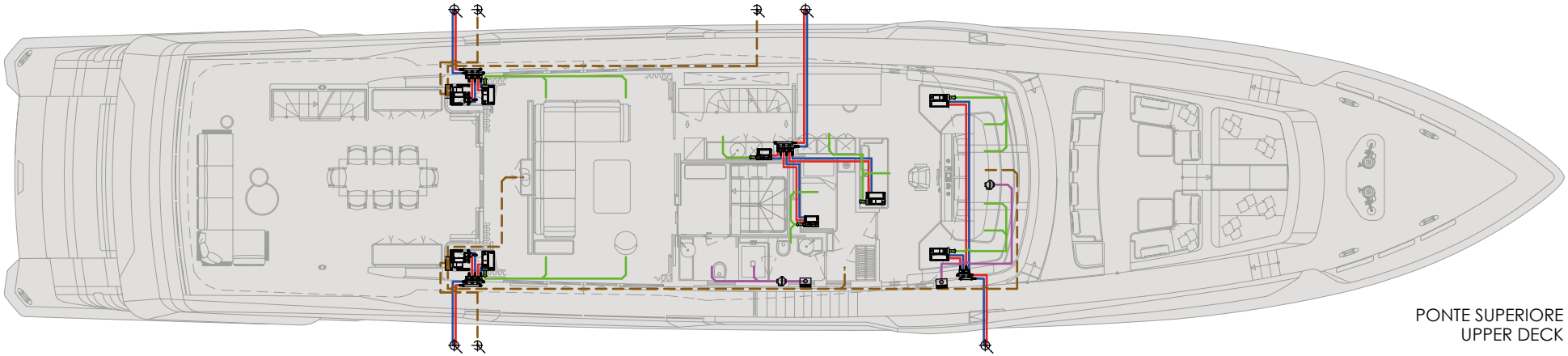
Its operation will stop when reaching a temperature of 7 ÷ 8 °C for chilled water.
The chilled water temperature can be controlled by means of the appropriate control panels located in the control room.

The calibration of the chilled water temperature is obtained by means of the thermostat on the unit panel. The chilled water circulation pump will circulate water to the different fan-coils.
Fan-coils will exchange heat with the surrounding environment, the return water will be heated and the thermostat will restart the compressor, in a differential range of 3 ÷ 4 °C, thus keeping the chilled water temperature in a range from 7 to 11 °C.

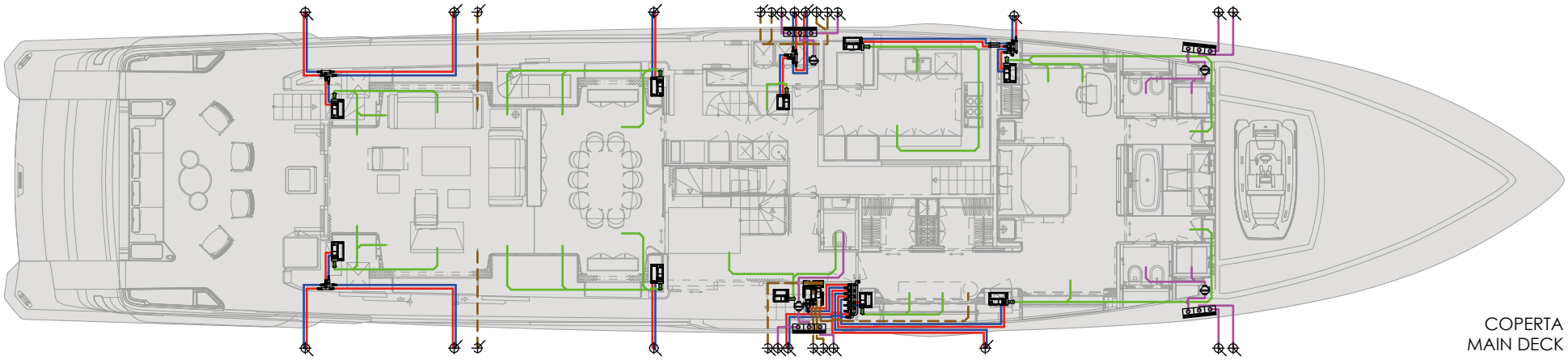
WARNING
The cleaning of the sea intake strainer must be performed with a periodicity related to the use of the system and by the conditions of the aspirated water.

CAUTION
Before cleaning the strainer, remember to close the sea cock valve, to stop the unit and then proceed with maintenance. Once this operation is finished, remember to open the valve which supplies the cooling circuit.

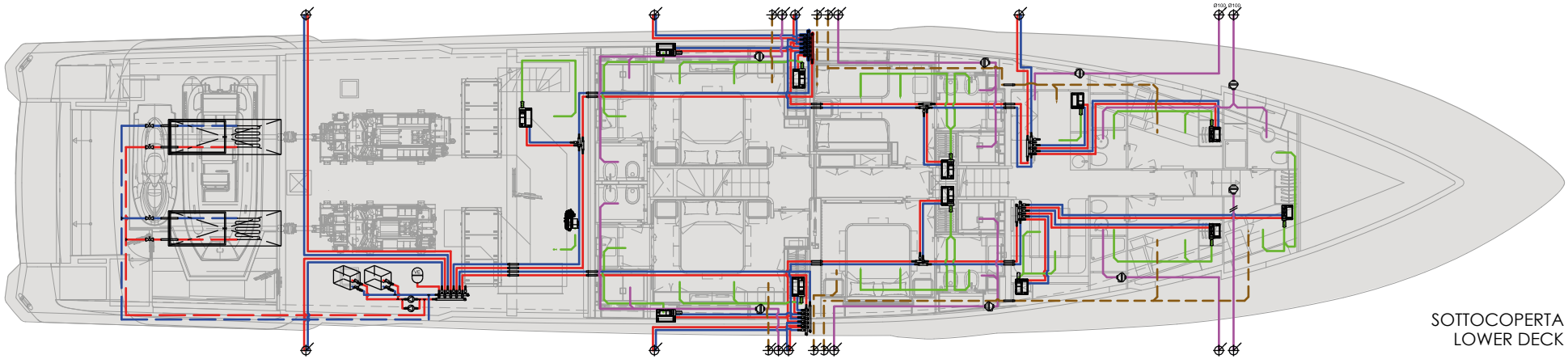
Air conditioning system diagram:



PONTE SUPERIORE
UPPER DECK



COPERTA
MAIN DECK



SOTTOCOPERTA
LOWER DECK

ICONA ICON	DESCRIZIONE DESCRIPTION
	Linea mandata acqua Water delivery line
	Linea ritorno acqua Water return line
	Linea acqua mare Sea water inlet
	Condotte aria FCU FCU air duct

ICONA ICON	DESCRIZIONE DESCRIPTION
	Condotte aria UTA AHU air duct
	Estrazione aria Air extraction
	Passaparatia stagno Watertight bulkhead penetr.
	Scambiatore di calore Heat exchanger

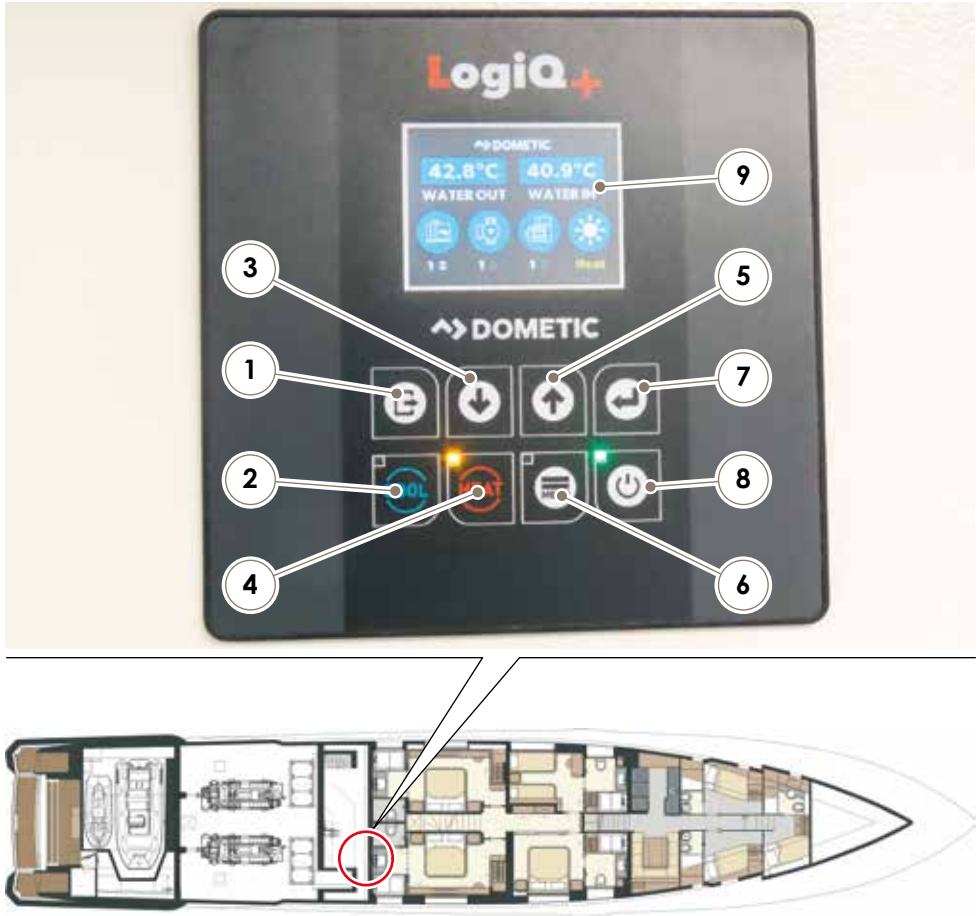
ICONA ICON	DESCRIZIONE DESCRIPTION
	Estrattore Blower
	Al ponte superiore To upper deck
	Al ponte inferiore To lower deck

9.1.1 Cooling unit control panels

The control panels of the chiller system located in the control room have the following functions:

1. "**ESC**" key
   Allows exiting the menu (**6**).
2. "**COOL**" Key
   When the relative LED is ON, cooling mode is active.
3. Decrease key "▲"
   This key allows decreasing a value and scrolling the menu.
4. "**HEAT**" Key
   When the relative LED is ON, heating mode is active.
5. Increase key "▲"
   This key allows increasing a value and scrolling the menu.
6. "**MENU**" Key
   This key allows selecting the desired temperature by means of key (**5**) or (**3**).
7. "**ENT**" Key
   Confirms the data set.
8. "**I**" Key
   This key enables switching the system ON (LED ON) or OFF (LED OFF) without disconnecting it.
9. Display
   Displays the data.

At first start the chiller unit will operate according to the parameters set.



CAUTION

The signal of any alarm implies a failure in the operation of the system.
INVESTIGATE and ELIMINATE THE REASON FOR THE FAULTY OPERATION before restarting the system.
Refer to the specific manual or refer to the Service Department.

CAUTION

It is strongly recommended that the factory-settings NOT BE CHANGED. This is possible only in exceptional cases and with the help of CUSTOM LINE staff and after sales & service departments.

NOTE

For further information on use and maintenance, please refer to the manufacturer's manual.

9.1.2 Fan-coil control panel

The fan-coil control panel located in each room, as shown in the air conditioning control diagram, has the following functions:

1. Ambient temperature read at the selected probe
2. Active operating mode (HEATING, electric HEATING, cooling, fan only)
3. Fan speed (AUTO, MANUAL). By clicking on the symbol symbol to access the function menu:
   - AUTO
   - MANUAL
4. Disconnection of the fan-coil
5. Temperature reached. By pressing the symbols in the function menu:
   - Cooling
   - Heating
   - Electric heating
   - Fan only
6. Temperature set keys
7. Configuration key

The system automatically switches over to heating or air conditioning, based on the temperature detected.

NOTE

For further information on use and maintenance, please refer to the manufacturer's manual.

9.1.3 Air-conditioning system maintenance

Sea water circuit check and cleaning
Check the strainer located on sea water suction periodically, specially when the yacht is shored. Never leave water in the system when the yacht is out of water. It is important, at least once a year, to have the system rinsed with fresh water for 1 or 2 hours, to remove all sea water residues.

Fan-coil cleaning
At least every fortnight clean the fan-coils inlet net by sucking the dust. The sucked air should not have a pressure higher than 1 and a half Atm. An higher pressure could damage the fan impeller.

Notes on the coolant
In case of coolant leaks, the first thing to do is to stop the A/C unit, to locate the leak and to eliminate it.
Once the leak has been removed, remove the coolant left in the circuit and refill the system completely; have the coolant filled by authorized engineers through the connection of compressor.

CAUTION
The topping-up of the cooling liquid must be carried out by skilled and qualified personnel, according to the indications of the Manufacturer.

CAUTION
The air inlets of the air conditioning system must always be free; their obstruction beyond involving the system performance, can also generate serious problems.

CAUTION
If the compressor is too noisy, an electric connection is wrong "compressor wrong rotation direction", check the electric connections.

CAUTION
Check that the valve lever is in the correct position with respect to the operation of the compressor unit.

WARNING
Wash the sea water circuit with fresh water at least once a year.

9.2 VENTILATION SYSTEM

The ventilation system of the engine room allows the necessary air recirculation for the operation of the propulsion systems and of the machinery installed on your yacht, so as to keep a safe temperature inside the engine room.
The ventilation system consists of: a side air intake equipped with two dampers positioned at the centre of the engine room, which allow air to enter the environment and separate any suspended sea water. Plus, there are two air intakes fitted with extractors and dampers for removing air and ejecting it outside.

In the control room there are two panels used to control the ventilation system of the engine room.

The extractors and the air intakes have a manual closure controlled directly by two tie rods located in the descent area leading to the control room.

Ventilation is not limited to the engine room, but also to the garage. This ventilation is obtained by means of two extractors and an explosion-proof extractor which allow the air to flow outside.
The shutters of the garage extractors are located inside the port mooring locker. In case of fire in the garage or in the technical compartments, immediately close the shutters.

The bow garage is also equipped with a ventilation system.
The air is introduced into the room from an air intake located on the right side of the yacht and is evacuated from the left side by an extractor.

CAUTION
While the engines are running, the extractors must always be activated. It is suggested to keep them on for at least 30 minutes, after anchoring, to eliminate the residual heat.

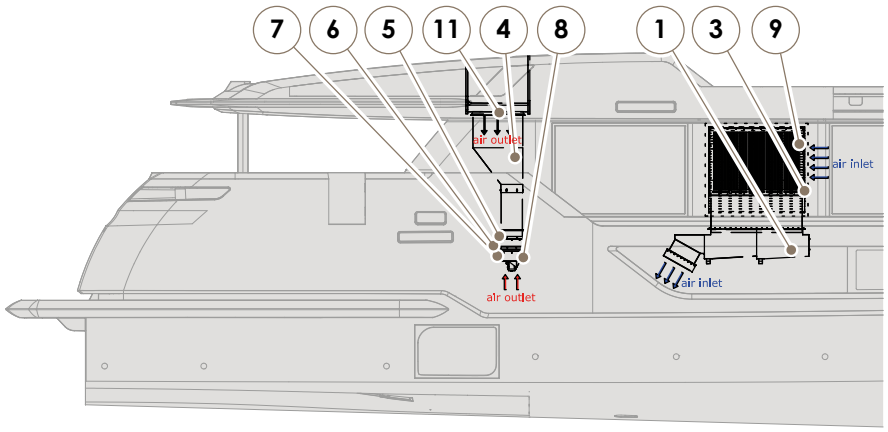
CAUTION
Do not lay tools or clothing on the extractors or on the air intakes, the emergency closing mechanism might get clogged.

DANGER
POISONING BY CARBON MONOXIDE
This is a colourless and odourless gas and extremely toxic. Therefore, it is necessary an adequate ventilation yacht when they are switched on the engines or the generator, especially during navigation at low speed or under conditions in which the fumes may fall towards the hull (such as when it is moored at the wharf, or anchored at anchor).

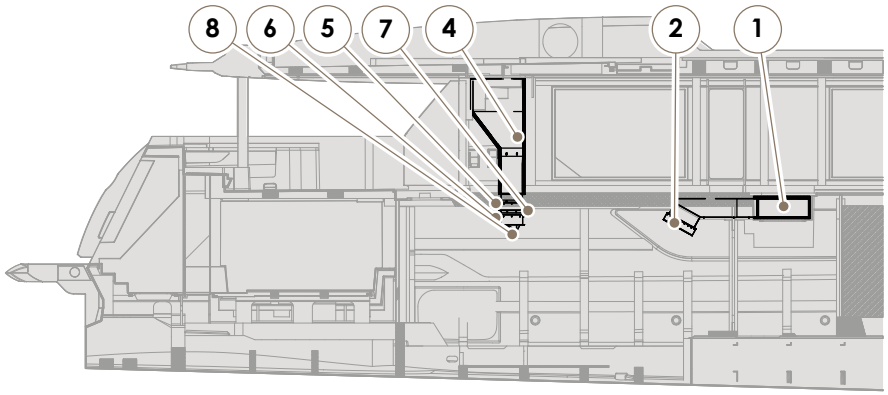
- Make sure the exhaust system of the engine is working properly. Carbon monoxide is extremely toxic.
- The exhaust system eliminates the engine combustion gases and maintains proper ventilation at the stern.
- Frequently Inspect the complete system for leaks. Losses can lead to carbon monoxide exposure.

DANGER
It is strictly forbidden to insert your hands or tools inside the fan when operating or when electrically connected. Before starting the fan, make sure that this one is protected against tampering, in compliance with the laws in force.

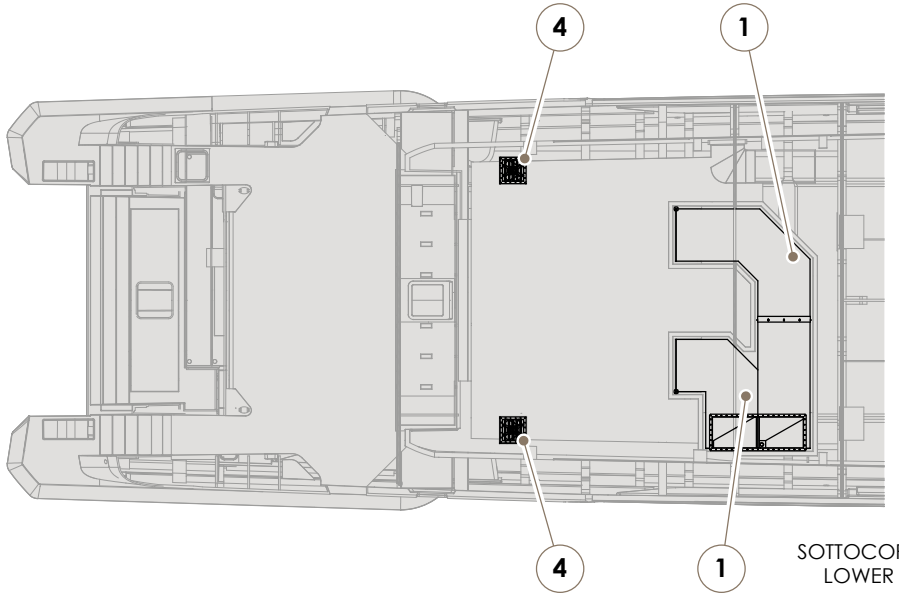
9.2.1 Engine room ventilation system



VISTA A DRITTA
STARBOARD SIDE VIEW



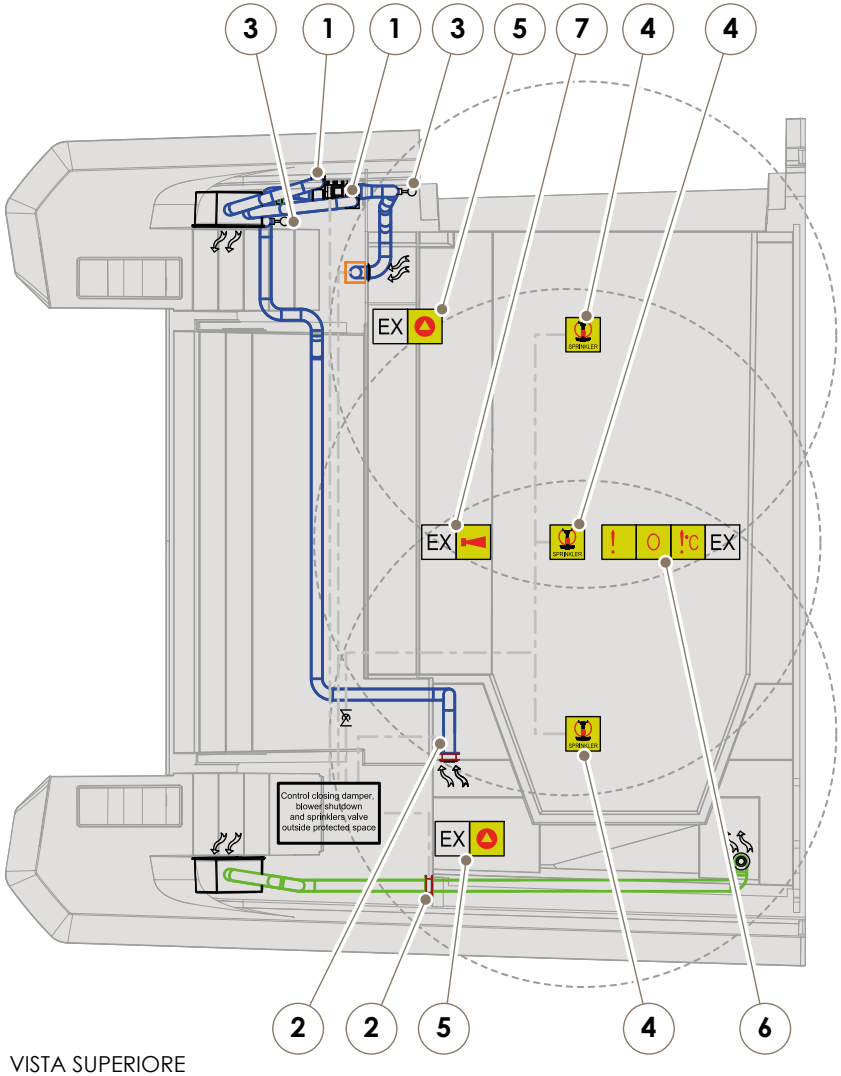
VISTA A SINISTRA
PORT SIDE VIEW



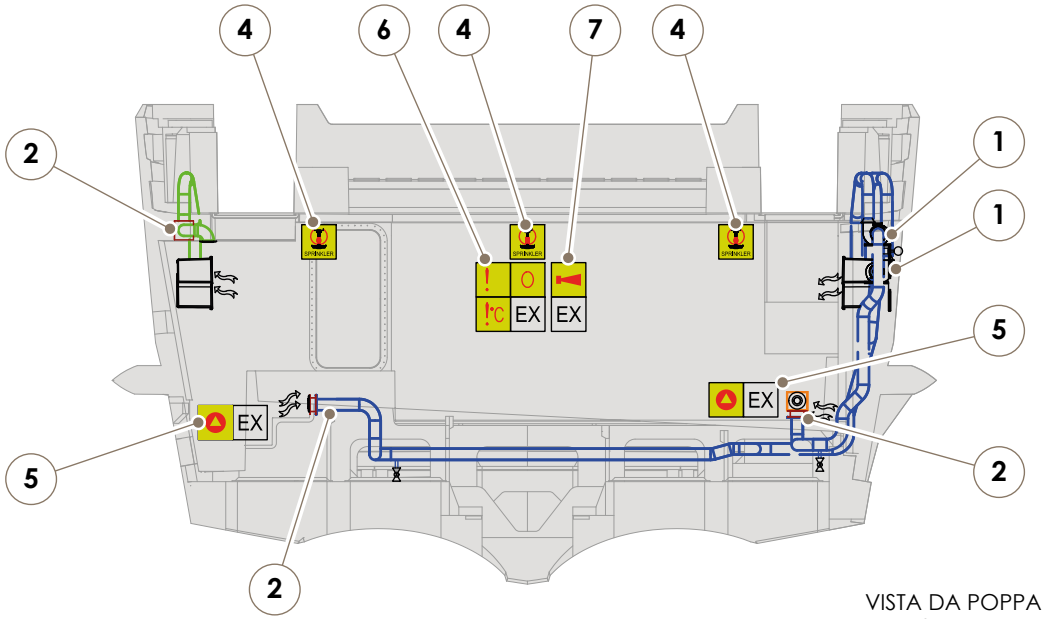
SOTTOCOPERTA
LOWER DECK

ICONA ICON	DESCRIZIONE DESCRIPTION
1	Canala ingresso aria Trunk inlet
2	Serranda di ingresso dell'aria Air inlet dumper
3	Griglia ingresso aria Air inlet grid
4	Canala uscita aria Trunk outlet
5	Serranda di uscita dell'aria Air outlet dumper
6	Flangia tonda-quadrata Round-square flange
7	Anello antivibrazione Vibration damping ring
8	Aspiratore uscita aria Air outlet bowler
9	Separatore Separator
10	Griglia uscita aria Air outlet grid

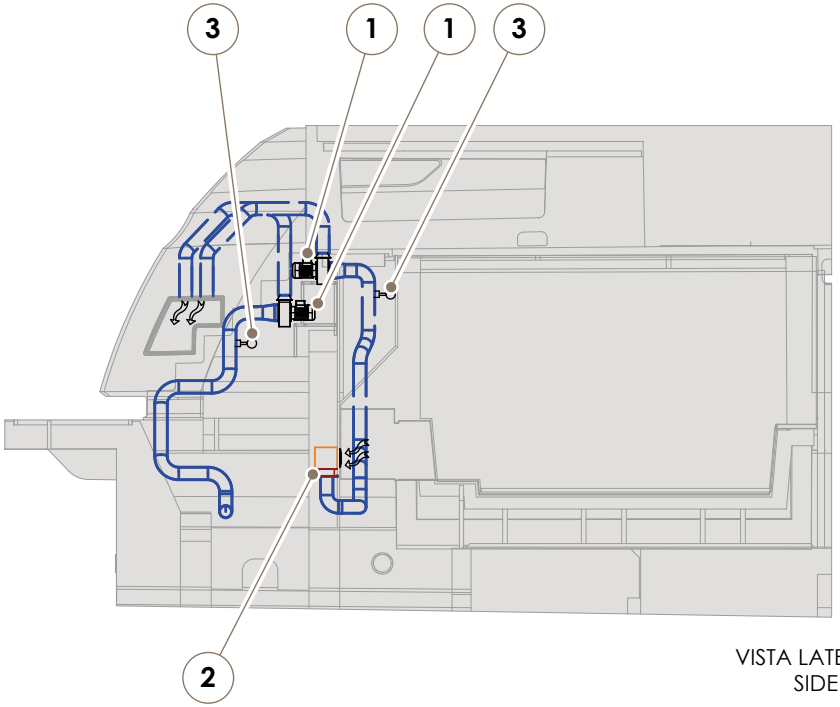
9.2.2 Garage ventilation system



VISTA SUPERIORE
TOP VIEW



VISTA DA POPPA
STERN VIEW

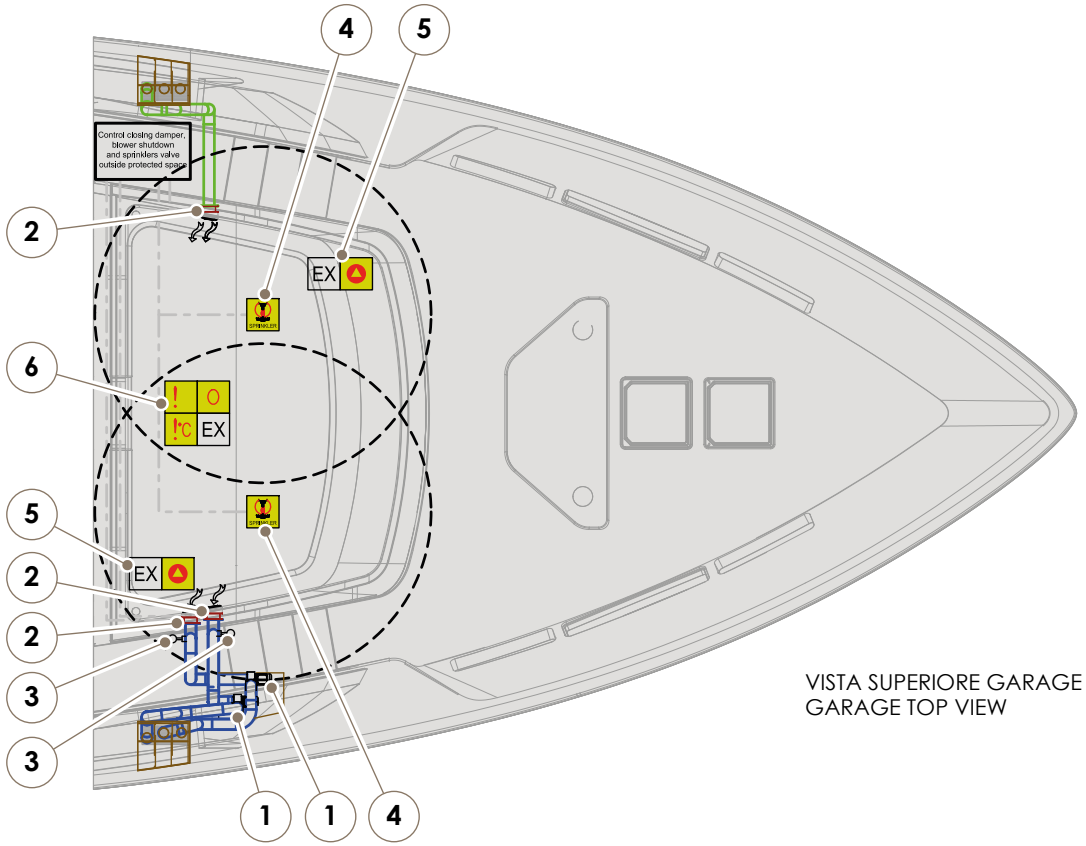


VISTA LATERALE
SIDE VIEW

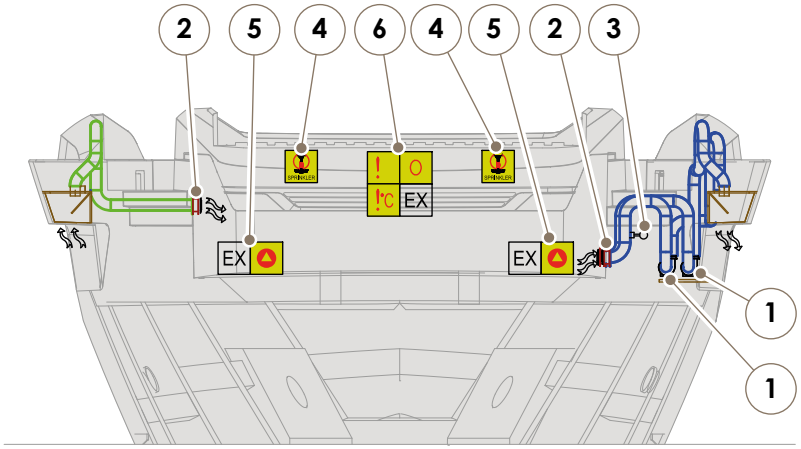
ICONA ICON	DESCRIZIONE DESCRIPTION
1	Estrattore Extractor
2	Serranda manuale Manual air shield
3	Trasduttore di flusso d'aria AirFlow transducer
4	Sprinkler Sprinkler
5	Rilevatore di vapori di combustibile Petrol vapor detector

ICONA ICON	DESCRIZIONE DESCRIPTION
6	Rilevatore di fumo e calore Smoke and heat detector
7	Allarme sonoro Alarm sounder
	Fuoriuscita aria Outlet
	Ingresso aria Inlet

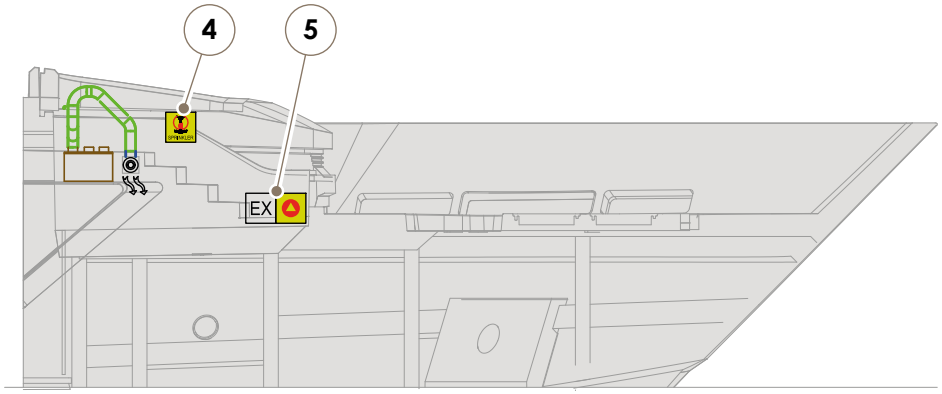
9.2.3 Bow garage ventilation system



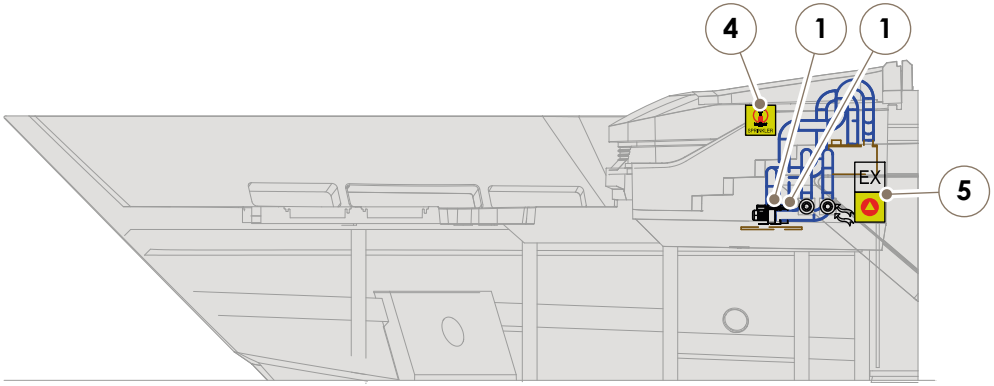
VISTA SUPERIORE GARAGE
GARAGE TOP VIEW



VISTA GARAGE DA PRUA
BOW GARAGE VIEW



VISTA LATERALE SINISTRA
PORT SIDE VIEW



VISTA LATERALE DESTRA
STARBOARD SIDE VIEW

ICONA ICON	DESCRIZIONE DESCRIPTION
1	Estrattore Extractor
2	Serranda manuale Manual air shield
3	Trasduttore di flusso d'aria AirFlow transducer
4	Sprinkler Sprinkler

ICONA ICON	DESCRIZIONE DESCRIPTION
5	Rilevatore di vapori di combustibile Petrol vapor detector
6	Rilevatore di fumo e calore Smoke and heat detector
———	Fuoriuscita aria Outlet
———	Ingresso aria Inlet

CUSTOM LINE 140’

10

Auxiliary equipment on board

10.1 MOORING AND ANCHORING ARRANGEMENTS

Your yacht is equipped deck instruments necessary for easy and safe mooring.
In addition to the windlass, the mooring equipment is located at the bow, walk-around and stern and consists of cleats, rope bridges and mooring winches:

- Each stern mooring furniture is arranged with two cleats and a mooring winch;
- A cleat is arranged on each side of the walk-around of your yacht;
- On the stern platform, two cleats have been arranged (one on each side of the yacht);
- In the bow mooring area, four cleats, four rope holder and two anchor winches are arranged.

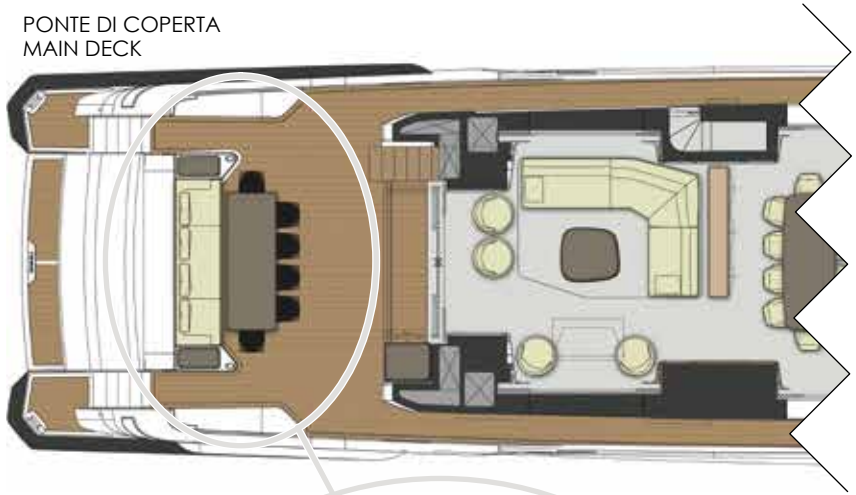
CAUTION
The mooring at the stern must take place in such a way as to allow for free disembarkation through the gangway.

CAUTION
Do not use the stern cleats as permanent mooring points.
They should be used only for the service tender or mooring of watercraft.
Stern cleats cannot be used for towing tenders or chase boats.

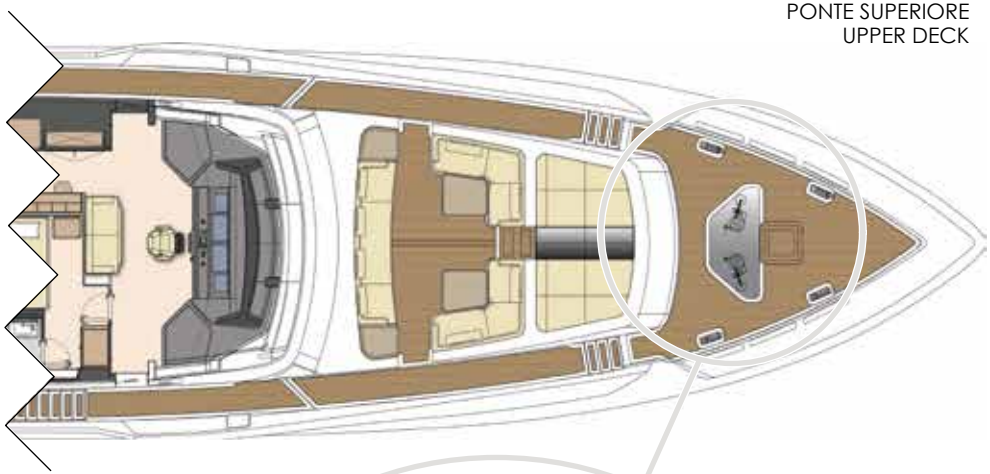
ICONA ICON	DESCRIZIONE DESCRIPTION
1	Bitta Cleat
2	Passacime Fairlead
3	Pulsantiera down Down push-button
4	Pulsantiera up Up push-button
5	Ancora Anchor
6	Cubia Hawse
7	Verricello Winch

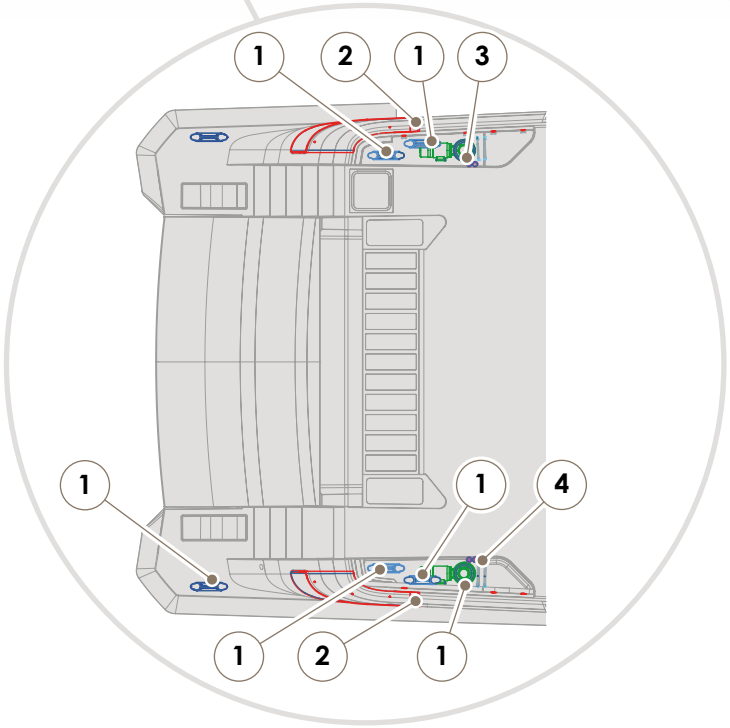
Bow and stern mooring:

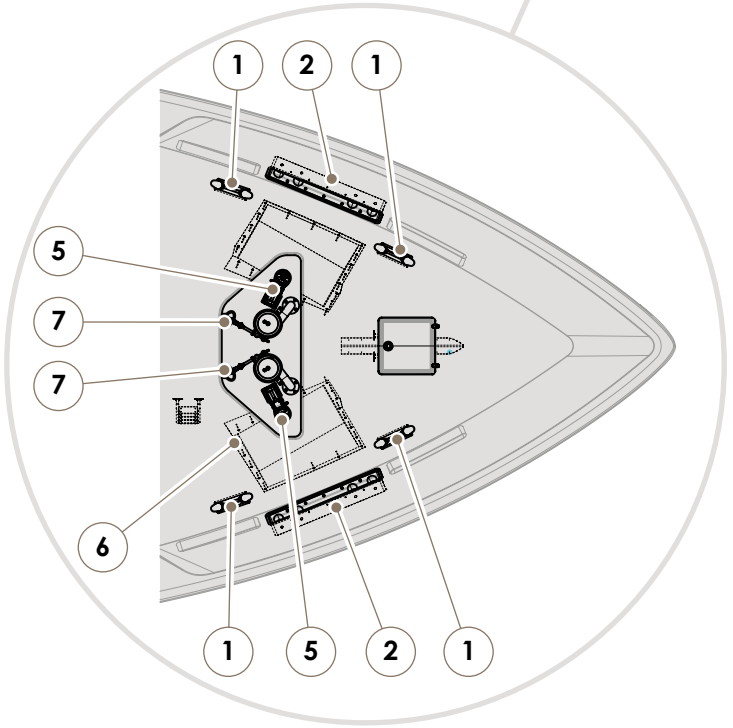
PONTE DI COPERTA
MAIN DECK



PONTE SUPERIORE
UPPER DECK







10.1.1 ANCHOR WINCH

The yacht is equipped with two winches that moves the anchors housed in the bow.
The anchor chains glides into the yacht through the chain guides and reaches the anchor winches, then winds around the wildcat and glides into the chain pits.
The anchor winches are equipped with control for chain displacement in both directions and with manual brake to lock the chain during mooring.
The winches are equipped with a clutch separating the drive shaft from the wildcat; this allows using it as a warping winch for pulling a line.

CAUTION
CUSTOM LINE is exonerated from any responsibility for any accidents or damage to persons or property caused by incorrect use of the device.

Anchor winch activation controls
The winch, positioned in the bow, can be operated via the remote control inside the forepeak.

CAUTION
If you intend to use the anchor, remove the slip lock and the safety anchor lock.

CAUTION
Do not bring body parts or objects near the area where the chain, the line and the wildcat run. Make sure the electric motor is not powered when acting manually on the anchor winch (also when you use the lever to loosen the clutch): people having the remote controls of the anchor winch (remote push-button panel) might accidentally activate it.

CAUTION
Lock the chain with the appropriate safety lock before leaving for navigation.

CAUTION
Do not operate the anchor winch electrically with the lever in the drum housing or in the wildcat cover.

Clutch use
The wildcat is connected to the main shaft by means of the clutch. The clutch opens (disengages) when rotating counterclockwise the lever inserted in the bushing. When rotating clockwise, the clutch will closed (engage).

Anchoring
The wind and the sea conditions highly affect an anchored yacht. Make sure the anchor is set in any situation. It is necessary to understand the principles of the chain length and its effect on the anchor performance.
The radius is technically defined as the ratio between the chain length and the vertical distance from the bow to the sea bottom.

The chain length depends on the type of anchor, on the sea bottom, on the tide, on the wind and on the sea conditions.
The chain length is 5 times the depth of calm sea; it is 7:1 in normal conditions and up to 10:1 in critical conditions.

$$\text{Radius} = \frac{\text{Chain length}}{\text{Bow height + water depth}}$$

As it is necessary to know the length of the chain to be used for mooring.

Chain length = (bow height + water depth) x radius

Anchor weighing
Start the yacht's engine. Make sure the clutch is engaged and pull out the lever. Press the control button available and start to weigh the anchor. If the anchor winch stops without any reason, the anchor might be stuck and therefore the anchor winch magneto-thermal switch trips, due to the effect of the effort. In this case, if after several attempts the anchor winch remains stuck, we suggest to manoeuvre the yacht, to release the anchor. Check the raise of the last metres/feet in order to avoid bow damage.

Anchor lowering
Lower the anchor by means of the electric controls or manually. To carry out this operation manually, open the clutch and let the wildcat rotate freely on its shaft and the chain fall into the water. To brake the anchor chain fall, turn the lever clockwise.
To lower the anchor electrically, press the control button at your disposal.
In this case the anchor lowering is perfectly controllable and the unrolling of the chain or of the line is regular.
Lock the chain with the appropriate safety lock before leaving for navigation.
The anchor and the chain may damage the yacht bow if the anchor winch is not operated carefully.
We suggest to carry out the operation by means of the remote control located near the anchor winch; this will allow checking the lifting and lowering speed of the chain and the entry and exit of the anchor shaft into the anchor roller. Namely during those operations, an excessive gliding of the chain or a wrong entry or exit of the anchor shaft from the roller, may cause damages to the yacht's bow.

DANGER

Do not use the on board auxiliary equipment for aims or in different ways from those indicated in the manual delivered by the Manufacturer.

Always disconnect the warping winches not in use, to prevent accidental activation.

DANGER

Never get too close to moving parts to avoid danger and injury.

CAUTION

The anchoring area is a circle with the centre at the anchoring point and a radius equal to the chain length plus the yacht length.
The entire anchoring area must be free, in case of sudden variations of wind and/or current direction, especially in case of night anchoring.
At night, before dropping the anchor, check that the white anchor light works.
Before dropping the anchor, check the nautical charts: anchoring is prohibited in certain areas, in weeds covered sea bottom, anchoring is unsafe and harmful to the environment, on rocky sea bottom, the anchor may get stranded or lost.
Anchor the yacht with the engines running, both for safety reasons and to compensate the electrical consumption of the winch.
Check the anchoring point frequently.
The distance from obstacles or other yachts must be, at 360°, greater than the length of chain dropped.
During anchor riding it is advisable to leave the winch powered.
Do not reverse the winch rotation suddenly.

CAUTION

The anchor chain is fastened to the yacht by means of a line and an hook system. If it is impossible to remove the anchor from the sea bottom, this system will ease up to resume navigation.

DANGER

When the winch is operating, be extremely cautious of rotating parts; keep your feet, hands and the remote control cable at safe distance.

Anchoring operations

- Make sure that the engines battery breaker is on;
- Turn the anchor winch switch ON, on the main electrical panel;
- When the key-pad is not used, disconnect it to prevent contact oxidation;
- Before operating the anchor winch with the electrical control, ensure that the gypsy clutch is tight and remove the slip lock and the safety anchor lock;
- Let the yacht move backward slowly; if necessary, use the engines;
- Lower the anchor until just below the waterline, and hold;
- Lower the anchor until it reaches the sea bottom;
- Once the anchor holds, leave the lock and the brake engaged.

CAUTION

Operate the anchor winch with the engines running, in order to provide the high current required and reduce the stress by slowly moving the yacht toward the anchor.

Lower and raise the anchor always by using the electrical control, after engaging wildcat and barrel. This latter can be disengaged both for casting off the anchor in case of need and to operate the barrel as a warping winch.

Weighing the anchor

To weigh the anchor, perform the same operations previously described above, in reverse order.
In windy or strong current conditions, start the engines and keep the bow toward the anchor position to avoid the breakage of the chock.
Once the anchor on board has been recovered, restore the chain lock before resuming navigation.

CAUTION

Prior to departing, check that the chain stopper is properly fastened.

NOTE

For further information on use and maintenance, please refer to the manufacturer's manual.

10.1.2 Anchor winch maintenance

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Reduction motor	Check and cleaning (before each navigation) Check and top up	When you weigh the chain, after an anchor mooring in a muddy or weedy sea bottom, we advise you to wash the chain using the proper system. The outer part of the winch requires frequent washes with fresh water because very much exposed to sea salt during navigation specially with choppy sea.

CAUTION

The valves that allow the chains to be washed must normally be kept closed.
They must be kept open only during the chain washing stage.

10.1.3 Warping winches

At stern, inside each mooring locker, a warping winch is installed on the side. For their operation it is necessary to wind the line into the barrel and to operate the foot button.

The foot buttons for each winch are located at the base of the relevant mooring locker and can be activated by pressing them with one foot:

- UP: recovers the line;
- DOWN: releases the line.

Near the warping winches are fitted two mooring cleats.
For a safe anchor mooring, the lines used for warping have to be fastened to the proper cleats.

DANGER

Do not approach your hands to the sliding area of the mooring rope.

NOTE

For further information on use and maintenance, please refer to the manufacturer's manual.

10.1.4 Warping winches maintenance

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Reduction motor	Inspection and cleaning	For a correct maintenance and check refer to instruction manual delivered by the Manufacturer.

Reduction motor:

DANGER

Before carrying out any maintenance operation on the anchor winch cut-off the electric power connected with it and remove with care the chain from the wildcat.

The winches are made of materials resistant to sea environment: it is necessary, in any case, to remove periodically the layer of salt which forms on the outer surfaces, to avoid dangerous corrosion, which could jeopardize its integrity. Wash accurately with fresh water and clean the surfaces, particularly those in which salt remains trapped.

MAINTENANCE

At least once a week:
- Check the operation;
- Wash with fresh water and carry out an accurate cleaning.

At least once every six months grease the terminals of the electric motor.
At least once a year disassemble and check the exposed parts.

10.2 COMPRESSED AIR SYSTEM

On the stern wall of the control room, the Manufacturer has installed a compressed air unit consisting of a compressor unit.

This system supplies with compressed air:

- Horn on the aerials plane;
- Stern air hose connection;
- Bow mooring area air hose connector;
- Bow garage air hose connector;
- Stern garage air hose connector;
- Stern mooring area air hose connector;
- Engine room air hose connector;
- Black water treatment system air hose connector;
- Air inlet for shaft seal (max 3 bar).

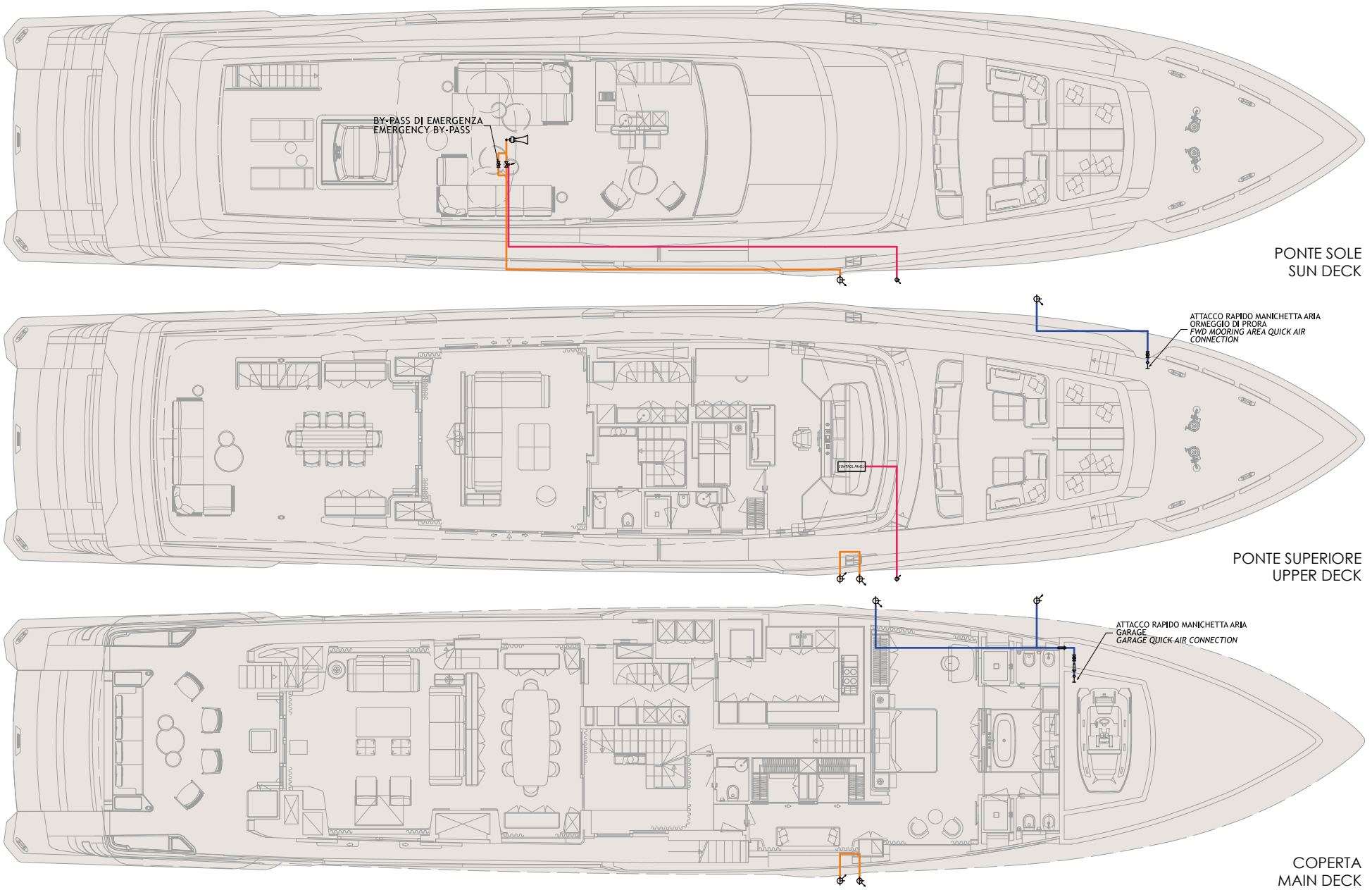
CAUTION

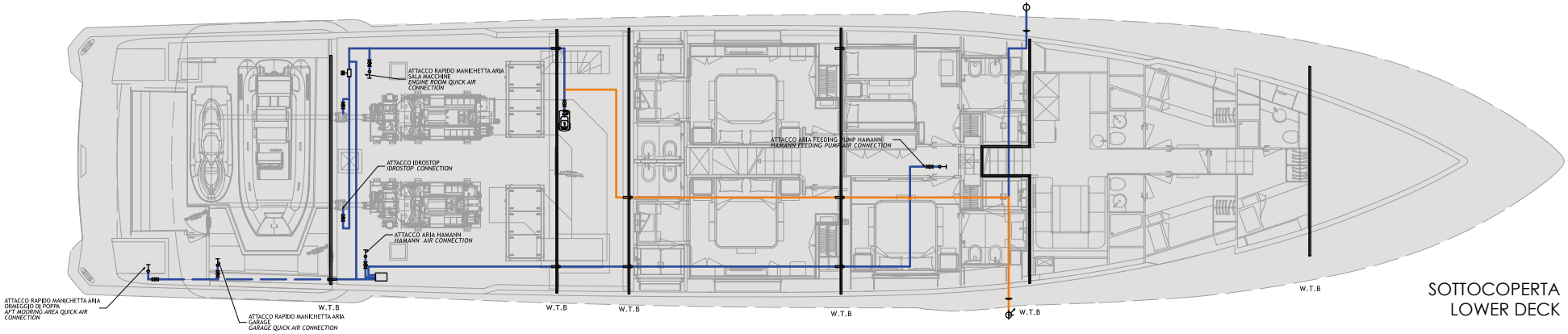
Be very careful when the compressed air use to prevent damage to property and / or people.

NOTE

For further information on use and maintenance, please refer to the manufacturer's manual.

Compressed air system diagram:





ICONA ICON	DESCRIZIONE DESCRIPTION
	Valvola a sfera Ball valve
	Elettrovalvola comandata Solenoid valve controlled
	Compressore Compressor
	Attacco rapido Quick connection
	Passaparatia stagno Watertight bulkhead penetration

ICONA ICON	DESCRIZIONE DESCRIPTION
	Passaggio a ponte stagno Watertight deck penetration
	Accumulatore Expansion tank
	Valvola riduttrice di pressione Pressure reduction valve
	Aria compressa tromba Horn compressed air pipe
	Aria compressa servizi Compressed air pipe service

ICONA ICON	DESCRIZIONE DESCRIPTION
	Aria compressa servizi - OPT Compressed air pipe service - Opt

10.3 GANGWAY SYSTEM

The system operates via a hydraulic control unit located in the technical room on the left of the stern beach area

The movement of the gangway is assisted and allows it to be extended or retracted. Once the gangway is fully removed, the free end can be raised or lowered to adjust the trim to shore height.

The system is fed by the pumps that, by sucking oil from the tank, send it through the solenoid valve blocks and pipes to the hydraulic pistons activating the gangway. On the aft transom starboard, is installed the receiving photocell, which detects the signal sent by the radio control and transfers it to the hydraulic control unit.

The radio control must be directed towards the photocell and no obstacles must stay in their way.

The gangway can be moved using the push-button panel located in the main deck stern cockpit.
The functions are to be performed by holding down the respective panel button until the movement is completed.

CAUTION
In order not to jeopardize the walkway of the seals, perform the washing in the box avoiding that water enters under pressure.

CAUTION
The gangway must always be closed during navigation.

DANGER
Do not operate the gangway during the passage of people. When passing on the gangway, exercise due caution in standing up to the rail. This is made up of rope and cannot be considered a rigid and safe support, but simply an aid to maintain your balance.

DANGER
Do not navigate with the gangway stowed away incorrectly. Ensure that the incorrectly, garage hatch and swim ladder are properly closed before navigation.

CAUTION
The hydraulic gangway, even if easy manoeuvrable, might damage people and things. Its use is recommended only to well experienced people.

DANGER
Be careful of moving parts and hands.

MAINTENANCE

At least once a week carry out the washing with fresh water and an accurate cleaning.
At least once a month:

- Check the oil level in the control unit, when necessary top-up;
- Check the possible presence of oil leaks and bleeding;
- Check the operation of the emergency pump;
- Check the possible presence of corrosion;
- Grease the pulley gliding races of the steel cable.

At least once every six months:

- Grease the swivel pins and the gliding sleeves;
- Tighten the locking bolts.

CAUTION

Always check for the correct gangway position from the shore. Never jump on the gangway.

CAUTION

Position the gangway in such a way that it cannot touch the shore, either because of the normal yacht swinging or of the tide change.

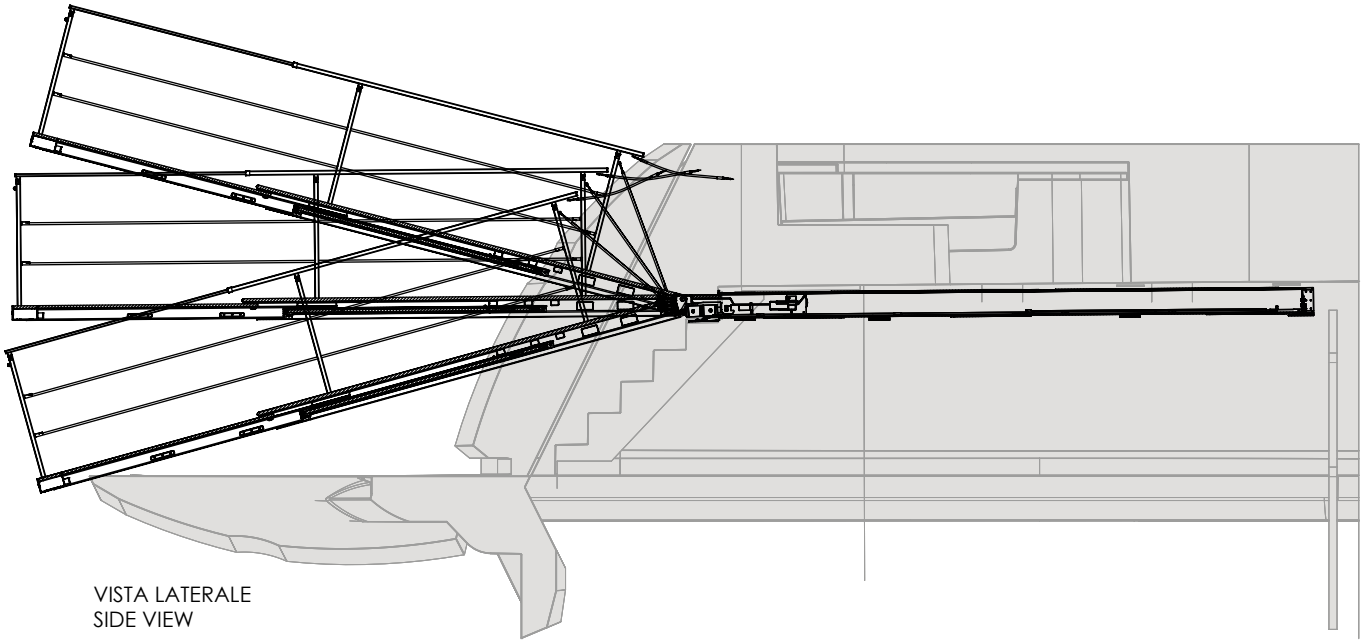
Should the gangway strike against the shore, it could get seriously damaged.

CAUTION

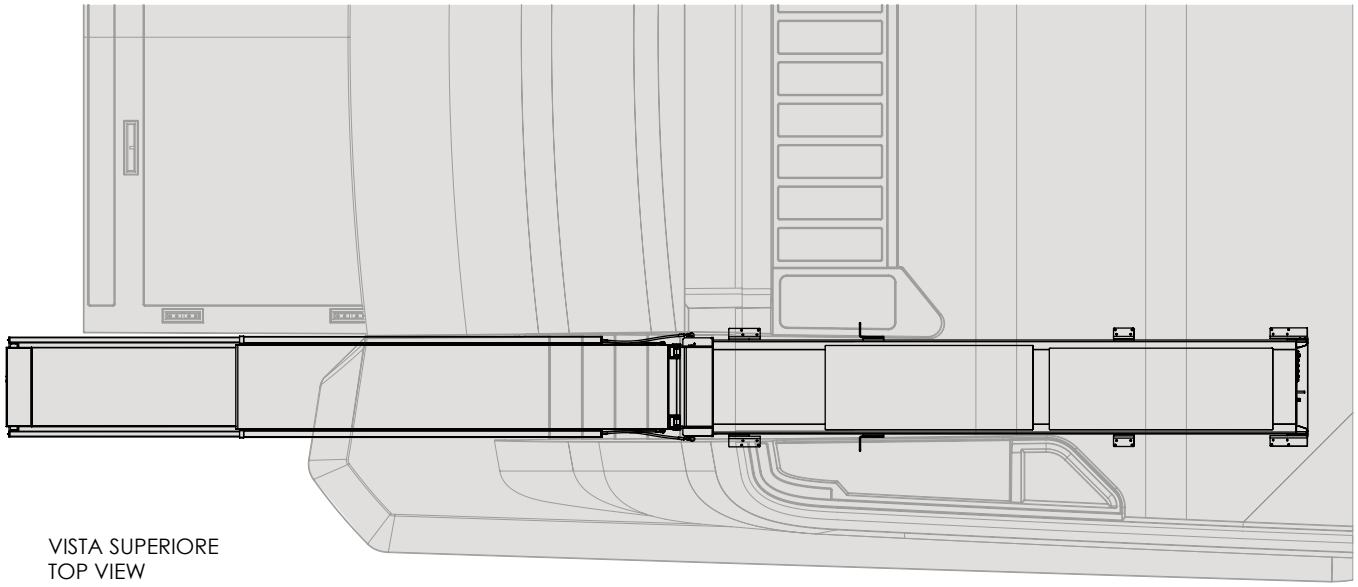
Do not use the gangway as a springboard.

NOTE

For further information on use and maintenance, please refer to the manufacturer's manual.



VISTA LATERALE
SIDE VIEW



VISTA SUPERIORE
TOP VIEW

10.3.1 Gangway system maintenance

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Gangway control unit	Oil check and top-up	Check monthly and before each navigation the oil level inside the tank. Top up keeping the oil level at about three-quarters of the tank's capacity, and using the type of oil recommended by the Manufacturer.
Gangway	Outer cleaning Ordinary maintenance	The gangway is uniquely positioned with respect to all other on-board equipment and is in continuous contact with sea water and exhaust gases. The system therefore requires more thorough cleaning.

To keep all our accessories and their parts in good working order, they should be cleaned carefully and thoroughly as often as possible.

For a careful and thorough clearing operation, cover all the steel parts with a layer of paraffin oil. As far as the coated parts are concerned, use a paste/cream. This will prevent the forming of rust stains, that could give the impression the device is built with materials not suitable for its use.

DANGER
Disconnect the power supply during cleaning or maintenance, so that the gangway cannot be moved by anyone.

ENVIRONMENT
Do not discharge hydraulic oil in the sea, but in the special areas for toxic waste disposal.

Verify oil level at each beginning and season end, if below minimum level, top up with the oil recommended by the Manufacturer. Verify the correct operation of emergency pump and hand operation of solenoid valves at each season beginning and end.

CAUTION
During assembly and subsequent topping up, ensure there is no infiltration of any slag, shavings, dust, etc. into the oil tank and therefore also into the hydraulic circuit.

CAUTION
The spares must correspond to the requirements established by the Manufacturer, this is obviously ensured with the use of original spares.

CAUTION

The check and maintenance operations must be carried out by skilled technicians, instructed about the control unit operating conditions.

NOTE

For further information on use and maintenance, please refer to the manufacturer's manual.

10.4 SWIM LADDER SYSTEM

The yacht is equipped with a removable swim ladder to be installed on the stern beach on the left side.

DANGER

Before going down into the water, make sure that the ladder is properly installed.

DANGER

Risk of electric shock from leakage currents. Do not swim in the waters of ports or marinas.

DANGER

Never use the swim ladder when the engines are running. Pay utmost attention to not approach to the interceptors area, because they could be accidentally activated.

CAUTION

Pay attention because the ladder can be slippery.
Secure the grip before starting the return on board.

DANGER

Never navigate with a swim ladder that is not properly stowed.

CAUTION

Do not use the swim ladder as a springboard.

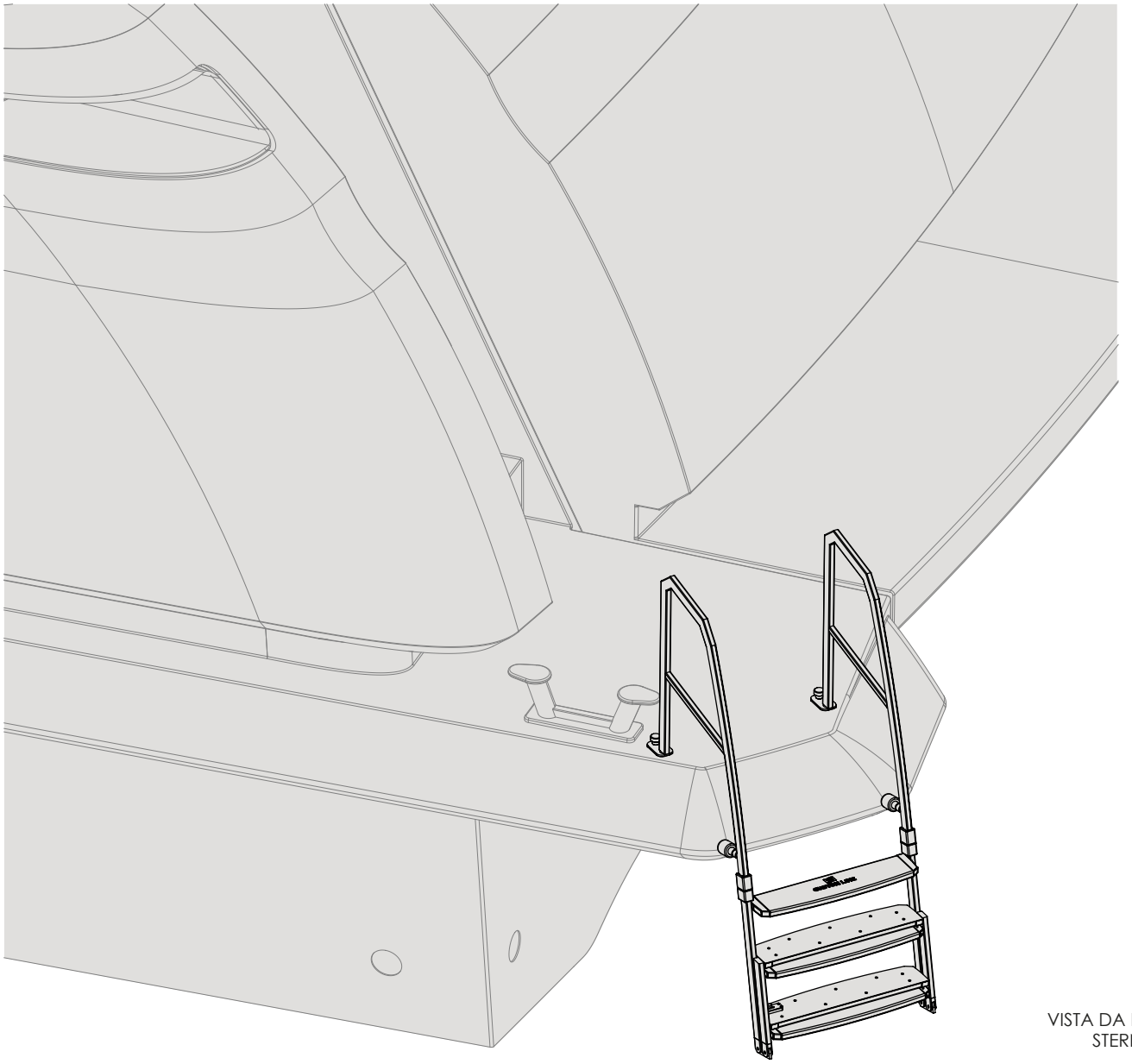
CAUTION

CUSTOM LINE declines all liability for any accident to persons or damage to property caused by a wrong use of the device.

MAINTENANCE

At least once a week, wash with fresh water and clean thoroughly.

Swim ladder layout:



VISTA DA POPPA
STERN VIEW

10.5 BEACH AREA HATCH SYSTEM

It is an independent system that operates through an electro-hydraulic unit located in the aft technical room on the port side, essentially consisting of an electric pump, an oil tank and solenoid valves.

The system is powered by the pump which, by suctioning the oil from the tank, sends it through the solenoid valve blocks and pipes to the hydraulic pistons that operate the garage hatch.

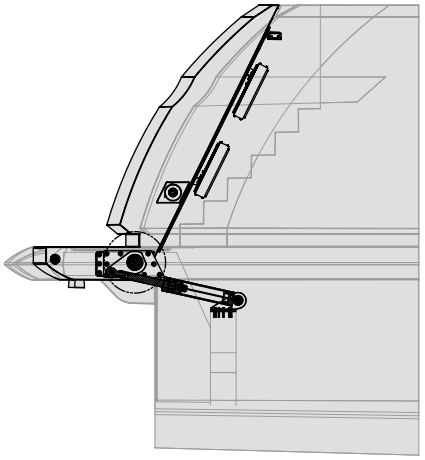
During the activation of the hatch it is important to disengage the safety latches by means of the provided control, to allow hatch opening; after closing the hatch, it is possible to engage the safety latches again.

CAUTION
We recommend to carry out the locking/unlocking of the hatch closure from inside the garage, so as to be able to check constantly the correct operating sequence.

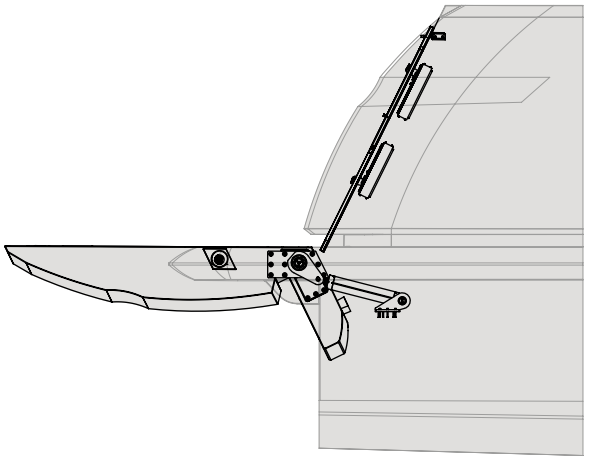
CAUTION
The hatch must always be closed during navigation.

Beach area hatch system diagram:

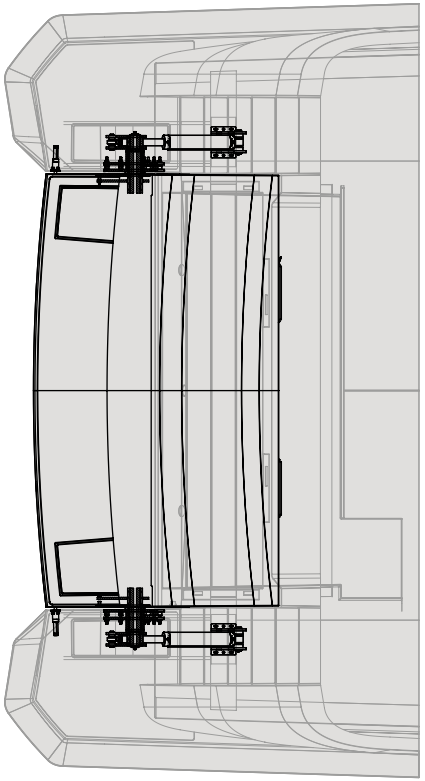
PORTELLONE AREA BAGNO CHIUSO
CLOSED BEACH AREA HATCH



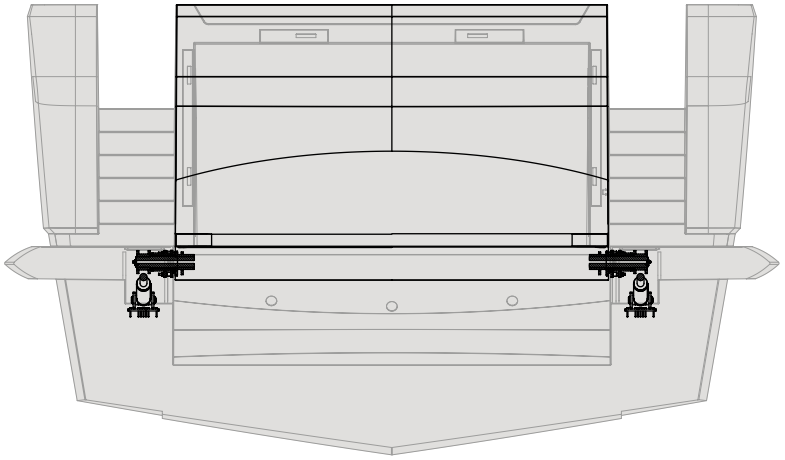
PORTELLONE AREA BAGNO APERTO
OPEN BEACH AREA HATCH



PORTELLONE AREA BAGNO CHIUSO
CLOSED BEACH AREA HATCH



PORTELLONE AREA BAGNO CHIUSO
CLOSED BEACH AREA HATCH



10.6 SIDE GARAGE HATCH SYSTEM

It is an independent system that works through an electro-hydraulic control unit, essentially constituted by an electric pump, an oil tank and by solenoid valves.

The system is powered by the pump which, by drawing oil from the tank, delivers it through the solenoid valve blocks and pipes to the hydraulic pistons that operate the garage hatch and the flap.

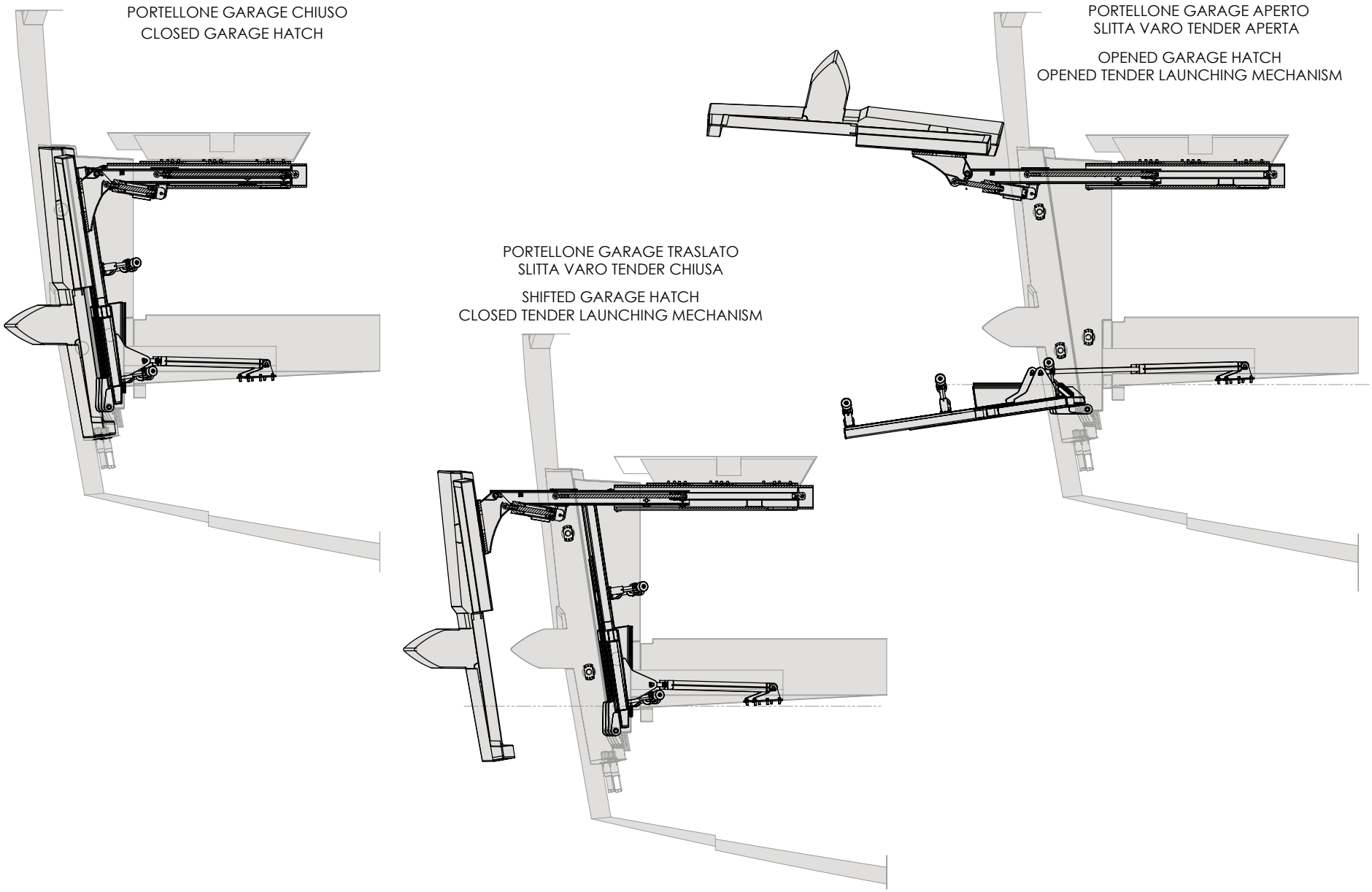
During the activation of the garage hatch it is important to disengage the safety latches by means of the provided control, to allow hatch opening; after closing the hatch, it is possible to engage the safety latches again.

CAUTION
We recommend to carry out the locking/unlocking of the hatch closure from inside the garage, so as to be able to check constantly the correct operating sequence.

CAUTION
The garage hatch must always be closed during navigation.

In order to launch a tender, it is necessary to first open the garage hatch, then rotate the flap.
In order to be opened, the garage hatch must perform a roto-translational movement towards the outside of the yacht.
The movement is controlled by a remote control located inside the garage itself.

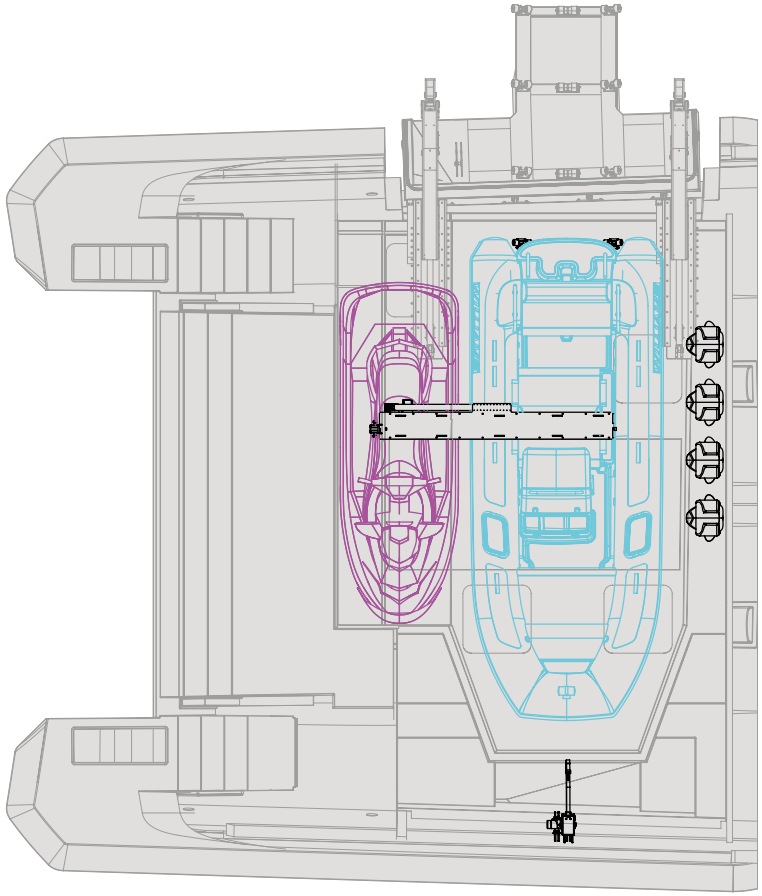
Side garage hatch movement:



Side garage launch:

PORTELLONE GARAGE APERTO
SLITTA VARO TENDER APERTA

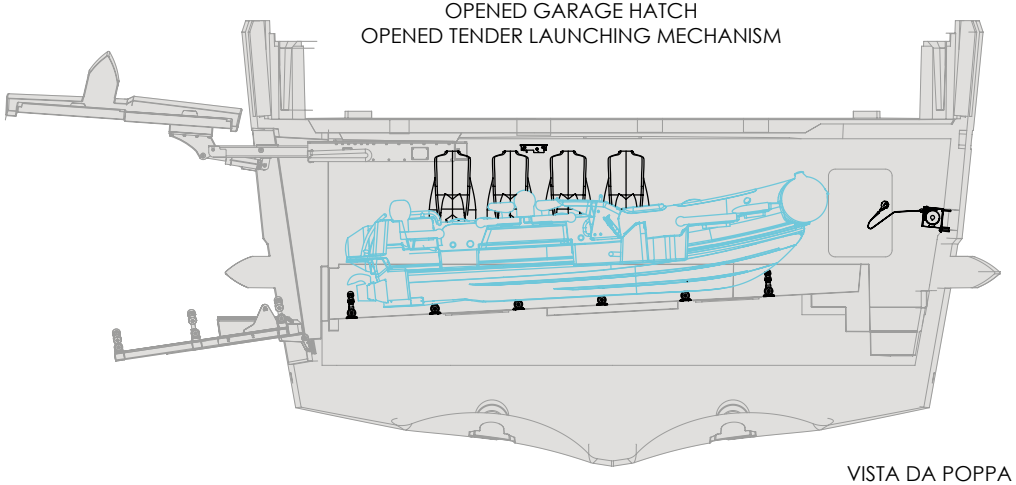
OPENED GARAGE HATCH
OPENED TENDER LAUNCHING MECHANISM



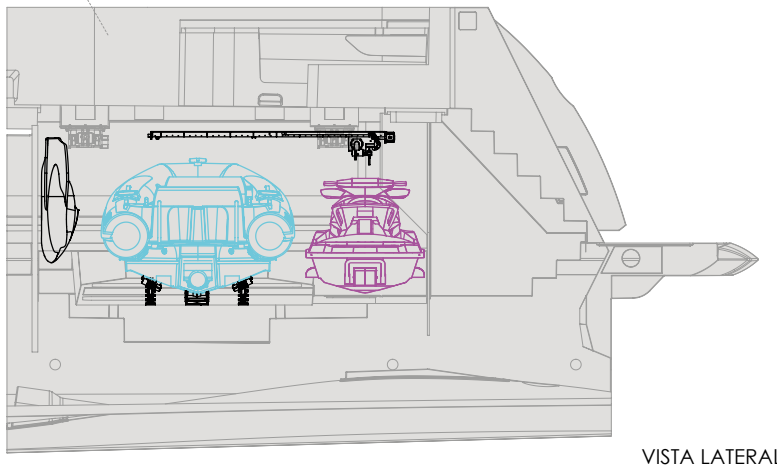
VISTA SUPERIORE
TOP VIEW

PORTELLONE GARAGE APERTO
SLITTA VARO TENDER APERTA

OPENED GARAGE HATCH
OPENED TENDER LAUNCHING MECHANISM



VISTA DA POPPA
STERN VIEW



VISTA LATERALE
SIDE VIEW

10.7 ELECTRO-HYDRAULIC DAVIT SYSTEM

The yacht is equipped with an electro-hydraulic davit (**1**) located inside the bow garage, with its electro-hydraulic control unit located near the davit.

In case of failure of the electrical system, it is possible to operate the generator set (**2**) located in the technical room to the left of the fore garage and accessible through a dedicated hatch.

DANGER
Make sure that the davit ropes are evenly coiled up and that they do not get tangled or caught in anything, which would put the operator's safety at risk.

DANGER
Do not haul the tender or jet-ski with persons aboard.

The movement of the davit is controlled by a remote control located inside the bow garage.

The keyboard controls all davit functions.
When it is connected to the control unit by means of the watertight connection, it remains in stand-by and does not accept any control, in order to prevent accidental use. The activation state of the keypad has a limited duration; if it is left unused, it deactivates after 10 minutes.
When the crane is being operated, if the connector is disconnected from the control unit, the movement is immediately stopped; therefore, before moving the crane, make sure that the connection is tight.

NOTE
For further information on use and maintenance, please refer to the manufacturer's manual.

CAUTION
The electro-hydraulic davit does not work if the bow garage hatch is not fully open.

CAUTION
The hydraulic davit, although being easy to handle, may cause damages to people and things. Its use is recommended only to well experienced people.

CAUTION
Avoid water infiltration by thoroughly connecting the key board plug and by tightening the ring nut or by plugging socket.

CAUTION
When using the davit, the stability of the ship is reduced.

CAUTION
CUSTOM LINE declines all responsibility for any accident to persons or damage to property caused by a wrong use of the device.

CAUTION
Disconnect the electrical power supply before removing any protective panel or replacing any part.
Do not wear rings, watches, chains, bracelets etc. during maintenance operations.
Always use individual protection equipment (gloves).
Do not use naked flames, prongs or pins for cleaning operation.
Do not smoke.

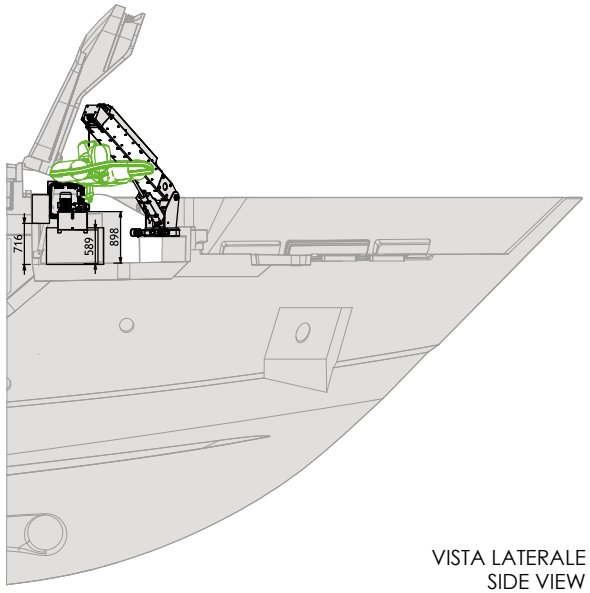
CAUTION
Do not exceed the maximum load indicated in the technical characteristics of the davit.

CAUTION
Before using the equipment check that there are no obstacles that might hinder the rotation of the davit.

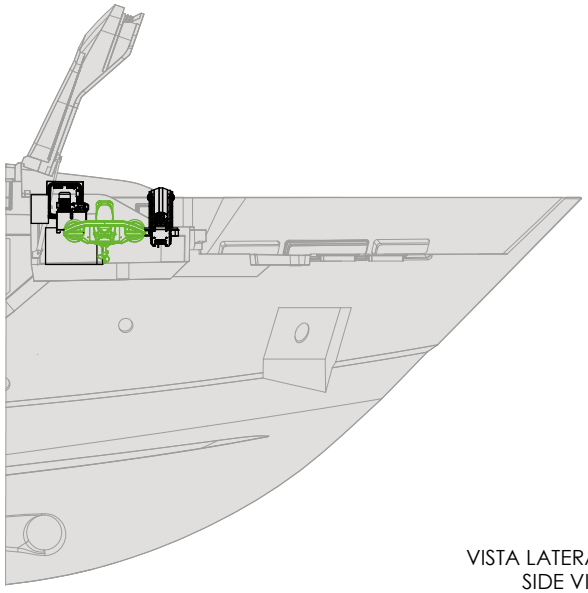
CAUTION

Do not use the davit to lift persons.
The original davit configuration must not be changed at all.

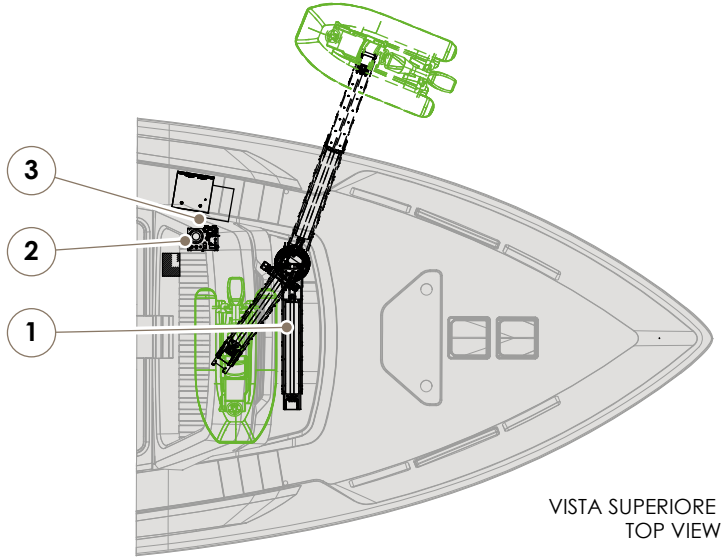
Bow garage launch/haul diagram:



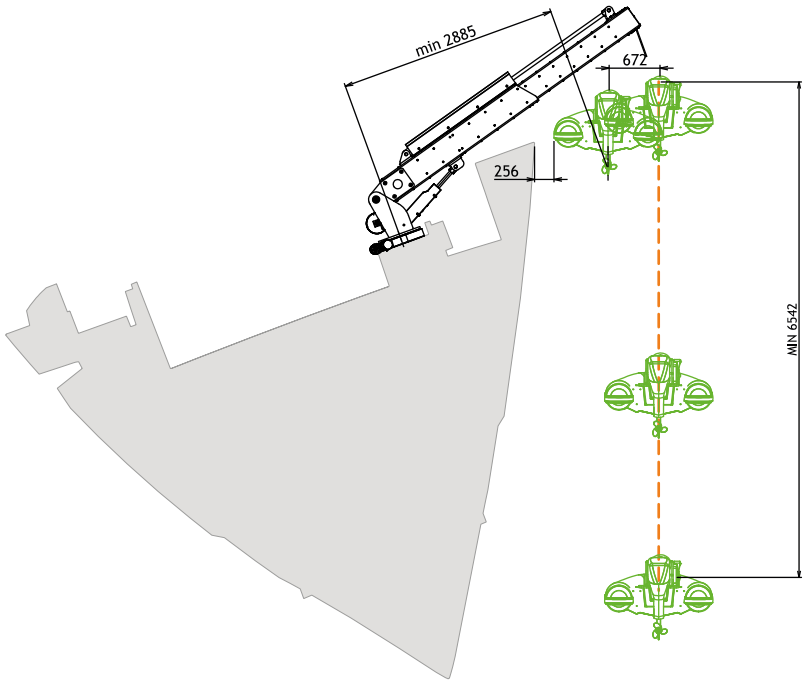
VISTA LATERALE
SIDE VIEW



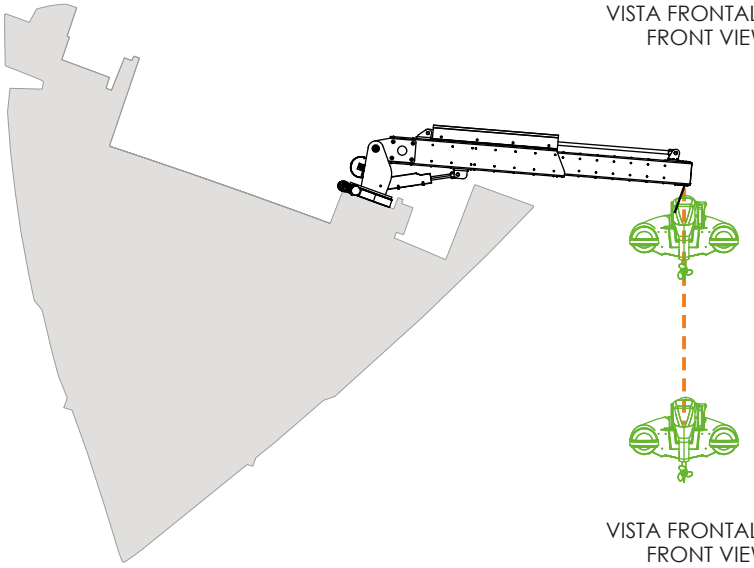
VISTA LATERALE
SIDE VIEW



VISTA SUPERIORE
TOP VIEW



VISTA FRONTALE
FRONT VIEW



VISTA FRONTALE
FRONT VIEW

ICONA ICON	DESCRIZIONE DESCRIPTION
1	Gruetta di salvataggio Rescue boat
2	Centralina elettroidraulica Electrohydraulic unit
3	Gruppo elettrogeno Power unit

10.8 AWNING HANDLING SYSTEM

To create a shadow zone at the stern of the Upper deck, the manufacturer has provided an awning in the pavement of the Fly deck, electronically controlled.

The control device for opening / closing of the awning are positioned in the aft of the Upper deck area.

CAUTION
During navigation the awning must be fully closed.
It can only be handled when the yacht is stationary.

10.9 WINDSCREEN WIPER SYSTEM

To ensure sufficient visibility in all weather conditions, your yacht is equipped with an efficient windscreen wiper system.
The system allows operation of the windscreen wiper blades by means of mechanical arms and at variable speeds. The windscreen wiper system is controlled by the on-board monitoring system.

10.9.1 Wiper system maintenance

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Windscreen wiper blades	Cleaning	Clean accurately with fresh water after each navigation return. Clean periodically the windscreen wiping blades using specific detergent or alcohol. Apply Vaseline oil on the blades and grease the arms springs with silicone grease.
	Replacement	Replacement Replace the windscreen wiper blades at least once a year with original spares. If necessary and if the blade rubber results to be deformed or worn out, replace them more frequently.
Windscreen washer	Cleaning	If the screen washing system does not work or has a poor performance, check that the supply circuit of the nozzles is not clogged. In such a case, clean the spray holes with a needle.

WARNING

During the cleaning or maintenance operation, make sure that nobody can operate the windscreen wiping system causing damages to persons.

CAUTION

Do not remove foreign bodies activating the blades when the windscreen is dry.

CAUTION

With very harsh weather, and with the freezing risk, detach previously the wiping blades from the windscreen surface.
Before activating the windscreen wiping system make sure that ice has not stuck the blades on the windscreen surface; if necessary spray an anti-freezing agent to detach them.

10.10 PANORAMIC BALCONY

Your yacht is equipped with a panoramic balcony (**1**) located on the starboard side of the owner's cabin.

The balcony is operated via the control panel (**2**) located to the right of the balcony.

CAUTION

It is forbidden:
- Jump onto the balcony;
- Using the balcony as a trampoline;
- Standing on the balcony without having installed perimeter protection.

DANGER

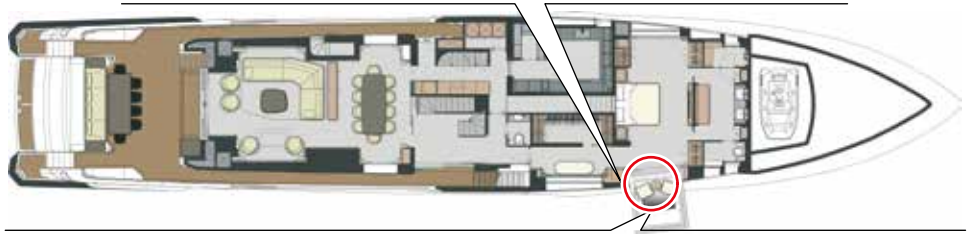
It is forbidden to open the balcony while sailing or to sail with the balcony open.

WARNING

Slippery surface.
Anti-skid devices must be worn.

CAUTION

In the event of bad weather conditions, do not open the terrace.



NOTE
For more information see the Special Part Manufacturer documentation.

CUSTOM LINE 140’

11

Information for use

11.1 GENERAL INFORMATION

This part of the manual describes some basic rules to keep in mind at all times in order to enjoy your yacht safely.

- Make sure that safety equipment is perfectly efficient and available to each passenger.
- Keep a safe distance.
- Check that all yacht safety equipment on board is in good condition and no maintenance activity is overdue.

NOTE

The manufacturer provides some of the international equipment required the owner will have to equip the yacht with devices required by national laws.

- In case of using the fixed fire-fighting system: do not ventilate the engine compartment, until the fire has been completely extinguished.
- Ventilate the engine compartment before entering. Ventilate the lower deck compartment before entering, if portable extinguishers have been used.
- Oils, used filters, emulsions, coolants and electrolytes are all harmful products: avoid contact with the skin and dispose of them carefully.
- In the engine compartment, be cautious with hot and moving parts.
- Wear hearing protection when entering the engine compartment.
- Do not use open flames and do not smoke, when handling fuel or lubricants.
- Do not scatter fuel in the environment.
- Change the fresh water in the tank frequently and treat with bactericides.
- Do not exceed speed limits in harbours or confined waters.
- Reduce speed in the proximity of other yachts or swimmers.
- Adjust speed according to sea conditions.
- Reduce speed before entering the engines room. Modify the course, if necessary.
- Before connecting the shore connection, make sure that the switches on the panel in the engine compartment are not activated.
- Before leaving the yacht, turn the battery breakers OFF.
- Handle hot oils carefully, in order to prevent serious burns.
- Do not work on engines or shaft lines without first disabling their start-up.
- Do not inhale exhaust fumes: risk of serious injuries or death.
- Before disconnecting a battery, check if the battery charger is operating. If it is, disconnect it and remove the negative wire first and then the positive one. When reconnecting the battery, follow the same steps in reverse order (the positive wire first and then the negative one).
- Replace any part showing signs of corrosion immediately.
- Do not disconnect the batteries while the propulsion engines are running.
- Do not disconnect the batteries while the generator or propulsion engines are running.

DANGER

The responsibility for the operation of each boat lies solely with the owner.
It is the Owner's direct responsibility to ensure, prior to departure, that the safety equipment required by law is present on board and fully functional.

DANGER

We recommend that you read the safety instructions in this manual carefully before you set off on your voyage and before operating the various on-board devices.

11.2 PRECAUTIONS FOR HARSH CLIMATES

Regularly check that all equipment and machinery containing water is protected with the correct proportion of non-toxic antifreeze.
If the outside temperature is below or close to 0°C (32°F), the fresh water and sea water systems run the risk of freezing.
Piping and hoses may break from freezing and this could lead to the yacht sinking.

Systems prone to freezing also include freshwater and saltwater cooling systems.

For more information on the maintenance and service requirements of your yacht and its equipment, and for special information about maintenance in cold weather, see the sections in this manual that refer to the single components, devices and equipment, but be sure to consult the User Manuals provided by the Manufacturers for specific information.

11.2.1 Cooling system

The antifreeze liquid is advised for all kinds of climates: it increases the working temperature range, lowering the freezing point and increasing the boiling point.
When the temperature comes close to 0°C (32°F) it is necessary, in order to avoid the risk of freezing, to make sure that the cooling lines are filled with antifreeze mixture. If not, replace the cooling liquid with such a mixture.
Before filling the system with antifreeze mix, it is necessary to wash the cooling circuit.

Engine cooling systems should be filled with a mixture of 60% water and 40% antifreeze throughout the year to ensure protection against corrosion and freezing down to -27°C (-17°F).

At the beginning of the cold season, the antifreeze content of the coolant must be checked and increased according to the expected outside temperatures.

ENVIRONMENT
Concentrated coolant must be treated as special waste.
When disposing of used coolant, abide by the regulations of the local authority.

NOTE
For information concerning the type of anti-freeze or additive to be used, please refer to the technical documentation supplied by the Manufacturer.

CAUTION
Do not use only water as a cooling liquid, as it is corrosive at the engine operating temperatures and does not protect suitably against boiling and freezing.

CAUTION
We recommend you to use technical liquids approved by the system Manufacturer. Always avoid antifreeze concentration to drop below 40% in volume. Replace the whole cooling liquid according to the schedule indicated by the Manufacturer.

11.2.2 Fuel system

At low temperatures, the fuel forms solidified paraffin suspensions that clog the fuel filters to the point of preventing the regular feeding of the engines.

Fuel as per European standard EN590 guarantees fluidity up to 0°C during the summer period, and up to -20°C during the winter period.

WARNING
There is a special type of fuel for countries subject to very low temperatures.

CAUTION
Do not add petrol to fuel, in order to avoid serious engine damage.

NOTE
For further information on use and maintenance, please refer to the manufacturer's manual.

11.3 PREPARING FOR NAVIGATION

Preliminary checks:
An accurate preliminary preparation is fundamental for a safe navigation. The text below summarizes come important advice to be taken into consideration when setting-up for navigation.

- Gather information on the weather forecast and warnings.
- Consult the navigation charts, and consider particularly the cruise distance, courses, sea bottoms features (low and dangerous).
- Consider the quantity of diesel oil necessary.
- Consider the length of navigation.
- Check the displays of the monitoring system for the possible lighting of the bilge pump lights indicating the presence of water. If they are lit up, press the bilge pump button. If the pump works but no water comes out, it means that the suction inlets are clogged (clean them);
- Check the cleanliness of the seacock strainers. If they are dirty, close the hull valves, remove and clean the traps, carefully reinsert them and reopen the hull valves;

WARNING
Once the hull valves have opened again, make sure that there are no leaks.

WARNING
During navigation, regularly check the cleanliness of the sea water strainer baskets. If the yacht crosses a dirty sea area, check the condition of the traps and clean them. This precaution is very important, to avoid the damage of mechanical parts (like engines, generators, etc.), of the exhausts systems and prevent endangering the yacht safety.

- Check oil level in engines, gear boxes and generators. If necessary, top up.
- Check engines and generators coolant level. If necessary, top up.
- Ensure fuel system separator filters are properly clean. If water is present, drain the filters and replace them if necessary.
- Check the hydraulic oil levels of the gangway, wheelhouse, etc.; top up if necessary;

WARNING
To carry out the above mentioned checks and the top-ups, refer to specific manuals supplied by the Manufacturer.

- Check liquid levels (fuel, fresh water) in the tanks.
- Ensure everything necessary has been loaded (provisions, nautical charts, documents, rockets, first aid kit, etc.).
- Check the proper locking of all mobile components located inside the yacht.
- Ensure the load has been distributed evenly, so that the yacht maintains a proper trim.

CAUTION

The materials stowed in the storage room can alter the trim, especially the transversal one. Try to arrange load equally and securely, in order to avoid sudden displacements.

- Write the list of the safety equipment.

WARNING

The yacht designated captain must make sure that all users are familiar with the location of the current safety systems (fire extinguishers, life raft, life buoys, etc.) And who are aware of how to use them.

CAUTION

Safety equipment should always be checked before each navigation, in order to ensure the good condition of the safety devices and to become familiar with their location and use. The little time spent may be very useful in case of need.

- Check that the life jackets are in good conditions and that they are stored where required and anyway easy to reach (avoid putting obstacles of any kind in front of access hatches).
- Ensure that the collective life rafts are easily accessible and that their mooring and anti-capsize line is in good condition (properly rolled up and not worn out).
- Ensure that the life buoys are stowed in their correct position and fitted with relevant safety rope and that the light buoy battery is charged.
- Check the charge status of the extinguishers. The extinguisher is charged when the pressure gauge indicator is in the green sector.
- Check the operation of the rudders (move steering wheel from end to end, and check their correct operation).
- Check trim tabs operation. If not employed, tabs must be kept in neutral position.
- Check navigation lights and horn operation.
- Check the efficiency of the windlass and the anchor chain safety retainer;
- Check transceivers operation.
- Check documents and nautical charts.
- Check proper closing of portholes and hatches and materials proper arrangement.
- Cast off moorings, ensuring no obstacle can hinder unmooring operations (not aligned cables, chain or anchor log engaged in other boats moorings, etc.)
- Check that the engine room extractors are operating.
- Ensure no flammable or other improper materials have been stowed in engine room.
- Check that the hull valves are in good working order (valves open);
- Ensure engines and generator fuel circuits are operational (open valves).
- Start the generators and after a few minutes of preheating power on through the control panel;
- Disconnect shore inlets/sockets (electric power, water supply, etc.).
- Connect engines and uses battery breakers.
- Verify the battery charge status on the general electrical panel of the technical room or on the monitoring panels. If necessary, recharge them.
- Connect necessary 24 V uses on electrical panels. Disconnect not connected uses after checking their proper operation.
- Start the engines.

CAUTION

The use of side locking systems, such as Cristal or similar ones, is not allowed during navigation.

CAUTION

The removable awnings and related support poles must always be dismantled and stored in the appropriate seats before starting navigation.
When not in use, the poles must be stored in the appropriate seats.
Awnings should only be installed when the yacht is stationary and with favourable weather and sea conditions.
Do not leave the awnings open in the event of heavy rain.
Do not leave the awnings installed on an unattended yacht.
Do not let water pool on the fabric of the awnings.
When not using the awnings, keep the pole engagement holes closed with the appropriate covers.

11.3.1 Weather

Learn to understand weather patterns and signs of change. Bad weather and sea conditions can cause an uncomfortable and unsafe situation. Here are a few basic weather-related rules:

- Check the forecast and sea conditions before leaving and while underway;
- A sudden change in wind direction or speed, or an increase in wave height indicates deteriorating weather;
- If a storm approaches, immediately seek a safe harbour;
- If a storm hits, head the bow of your yacht into the wind;
- If you encounter fog, determine your position, set a safe course, slow down and alert other boats of your presence with a sound signal.

11.4 FIRST PERIOD OF USE

During the first period of yacht operation, beyond the normal maintenance operations indicated in this Manual, we recommend carrying out the following additional operations and more accurate checks. The duration of this period varies according to the frequency and use modes, but are in any case suitable allow a correct run-in of all systems and on-board components.

WARNING

We recommend consulting the technical documentation provided by the Manufactures of the various on-board systems and components; they can indicate operations, checks and specific times not included in this section of the Manual.

Following the first period of use, the hereunder listed additional operations and checks, should be performed at longer time intervals, although in any case, they play an important role for the safeguarding and reliability of the yacht and navigation safety.

- After starting each engine, check for the correct circulation of the cooling water inside the circuit, by verifying that it comes out of the drains. Check also for the presence of leaks from the sea cock valves and strainers of the cooling circuits.
- Before the engines start, check the correct tension of the v-belts.
- Check the possible presence of unusual noises from the engines ex-haust.
- Before and after navigation, check for possible leaks in the shaft lines.
- During navigation monitor constantly the temperatures and operation pressures of the devices on board (propulsion engines, generators, gear boxes).
- Through the indicators on the electrical panel in the helm station, check the correct level of charge of the service and engine starter batteries. The engine alternators must also properly charge the batteries;
- Verify the efficiency of the rudders (by often checking the tiller angle) and of the interceptors.
- Before and after navigation, check the correct oil level in the rudder systems, hydraulic gangway, manoeuvring thruster, etc.;
- After the generator to start, wait several minutes before loading it. Bring it slowly to maximum performance monitoring its correct operation.
- Check the correct load level of all extinguishers (fixed and portable ones) installed on board.
- Before and after navigation, check the correct operation of all bilge pumps on board.
- Check tightness and closure of portholes and hatches.
- Check the correct sliding and closure of the salon door, considering that it is not watertight.

11.4.1 Engine drive

Although this yacht is very efficient, due particularly to very sensitive rudders, which allow immediate reaction to controls, its use, considering its high performance and big dimensions, requires a careful and responsible steering.

CAUTION
Even if the automatic pilot controls the route, navigation must be supervised in any case. Adjust the speed of the yacht and the interceptors' position according to the conditions of the sea and the prevalent direction of the waves; in this way, the structure of the yacht is not submitted to useless stress and the passengers can enjoy more comfort during navigation.

The excellent quality of the engines allows keeping the maximum speed ratio for a long time, without problems.

In order to achieve the best compromise between comfort and speed, while minimising consumption, it is recommended to keep the engine speed in the range between 1500 and 2000 rpm less than the maximum permitted revolutions.

CAUTION
During navigation, the lateral sliding door should normally be kept closed, in order to prevent any exhaust gas and water splash from entering deck compartments. This will improve comfort for the passengers and silence inside the compartments.

Avoid keeping the engines at idle speed for long time, they could get overheated.

Once the yacht has reached the cruise speed, engine control devices should settle on steady values. If the instruments show contrasting or abnormal indications during continuous running, check the systems and the equipment.

Observing the following guidelines will improve comfort, minimize noise inside the yacht, avoid damage and assist in the proper operation of the yacht.

- Do not run the engines at idle longer than necessary.
- Avoid sudden accelerations and decelerations, which create stress on engine turbochargers.
- Run at idle for a few minutes before shutting down the engines, to allow a gradual cool-down.
- Once the yacht is at cruising speed, the engine instrumentation readings should remain steady. However, if, during normal operating conditions, the engine gauges show abnormal or contradicting values, investigate for possible systems and/or equipment problems or failures (stop the engines).
- Monitor the control panel gauges and system condition alerts frequently.
- Once in open waters and well clear of other boats, increase the engine rpm gradually, until the desired speed is reached. Adjust the interceptors' position for the best performance.
- Adjust the speed to accommodate sea conditions.
- Check the engine exhausts. Very black smoke means in particular dirty filters or unburned fuel, due to improper calibration of injection pumps or injectors. Very white smoke may mean presence of water in the fuel. Bluish smoke may mean abnormal oil combustion.
- In case of abnormal vibration, reduce speed and run at slow rpm until the cause of the vibration is determined. If the vibration is severe, take the engines out of gear. It may be necessary to check the propeller condition. It may also be necessary to have a specialized technician check the alignment of the propeller shafts.

- Perform a visual inspection of the bilges periodically.

Be aware of the fuel supply in relation to the distance you plan to cover.

WARNING

While the yacht is underway, all persons on board must be seated in the designated seating areas in order to prevent injury due to falls caused by sudden yacht movements in active wake areas or in the event of sudden changes in yacht speed or during manoeuvring.

11.5 REFUELLING

Refuel as follows:

- Ensure the ship is properly moored, stop engines and generators, if running.
- Unscrew the cap of the filling nozzle and make sure that the refuelling pump is of suitable size, then insert the pump held still. The fuel filler is positioned inside a special locker on each side walkway of the ship.
- Do not top up the tanks at highest level, so as to allow the fuel to expand without spilling out from vents.
- During the refuelling phase, the overflow tanks must be monitored in order to check that there are no accidental diesel spills due to air pockets and foam. In the final phase of refuelling (at about two thirds of capacity), it is advisable to carry out frequent stops to allow foam to dissolve.
- Screw the cap of the filler pipe and wipe any fuel drips on the hull and teak.

CAUTION

Refuelling should be performed in the harbour, in order to allow fuel to cool down, without to condensate. After each refuelling, empty the tanks. Before refuelling, wash the teak with fresh water to avoid its contamination with fuel.

CAUTION

During the refuelling operation ensure that vents are free and open inlet plug on the bulkhead opposite to the one in use, to avoid fuel spills. We also advise to wash the area around the plug with fresh water.

CAUTION

Filling lines pressure must be kept constantly under 0.3bar during bunkering operation.

ENVIRONMENT

Do not scatter fuel in the environment but dispose of it in the dedicated areas.

ENVIRONMENT

Dispose of fuel-contaminated polluting waste according to the rules in force.

DANGER

Fuel leak can cause a fire to break. Check periodically the integrity of your system.

WARNING

The inlet plug carries the indication "DIESEL" to avoid accidental input of different liquids.
To avoid damage to the system and tanks, we recommend replenishing by gravity and not by pressure.

CAUTION

Explosion/fire/pollution hazard

Fuel system connections that are too loose or too tight can leak, resulting in fuel loss, environmental pollution and explosion/fire danger.

CAUTION

Explosion/fire hazard

- Stow flammable material in a safety-approved container. Never stow flammable material in non-vented areas.
- Check bilge and engine room for fumes.
- Keep the ventilation system free of obstructions. Never modify the ventilation system.
- Inspect the fuel system for leaks.

11.6 WATER SUPPLY

Proceed as follows to refuel the fresh water tank:

- Ensure the ship is properly moored.
- Loosen the filling nozzle and insert the hose, which must have suitable dimensions.
- The water supply openings are located on the sides of the yacht inside a special locker along the walk-around.
- At the end of filling, remove the hose and tighten the filler plug or close the tap.

WARNING

The inlet plug carries the indication "WATER" to avoid accidental input of different liquids. To avoid damage to the system and the tank, it is advisable to use gravity refuelling rather than pressure refuelling.

CAUTION

Frequently change the water in the fresh water tank and disinfect it with suitable products if necessary. Avoid leaving the tanks completely full if there is a risk of freezing. When refilling, do not leave the yacht unattended.

CAUTION

Before refilling the fresh water tank, check that the water coming from the shore system is drinkable.

CAUTION

To avoid damage to the system and tanks, it is recommended to refill by gravity and not by pressure.

11.7 SHORE CONNECTIONS

11.7.1 Water connection

To avoid using fresh water from the tank, the yacht may be connected to an external water system using the intake located on the port starboard side.

By connecting to this socket, all the utilities on the yacht are powered without having to use the freshwater autoclave pumps located under the crew galley.

CAUTION
The piping must be disconnected during the periods the yacht is unattended.

11.7.2 Electrical connection

Proceed as follows to carry out the electrical connection from the shore:

- Open (OFF) the main switch of the shore power socket from the "shore line disconnector" panel located in the stern technical room on the starboard side.
- Open (OFF) the switch on the shore charging point.
- Pull the cable out of the yacht and connect it to the shore charging point.
- Close (ON) the switch on the shore charging point.
- Close (ON) the main switch of the shore power socket.
- Before closing the magneto-thermal switches of the various utilities, check the voltage supplied by the shore charging point.

CAUTION
Do not modify the ground power cable connectors; only use compatible connectors. If the yacht's power cable cannot be inserted into the shore charging point, ask the Harbour Master for an adapter.

DANGER
When plugged in, check that the cable:
- Cannot go in traction due to tide variations, yacht movements, etc.;
- Cannot be damaged by crushing it, etc.

11.8 MOORING AND UNMOORING

CAUTION

Before the unmooring operation, ensure that engines, gear boxes, rudders and bow/stern thrusters are in good working order. During such manoeuvres, the Captain should prevent any unpleasant noise, and/or wake that might bother other people. Before starting this manoeuvre, make sure that doors, hatches, swim ladder, etc. are closed.

CAUTION

The rudder wheels are not interlocked. Before starting the manoeuvre, make sure that the unused station is free from people who may interfere with the controls.

WARNING

Before starting the manoeuvre, make sure that persons on board, do not interfere with the operations and that they stay in safe places, where they cannot get hurt.

The yacht is equipped with very powerful engines, with high-performance rudders and with very efficient thrusters.

Those latter have to be used at very low speed, or without fresh way; at higher speeds, it is possible to obtain a more correct reaction by using the engine throttles in an off-set way.

The ability to exploit such qualities depends on the "familiarity" the Captain has with his yacht. Practice is the only way to acquire confidence, and finally you will be able to safely perform mooring and unmooring manoeuvres even in very difficult or crowded areas.

A basic rule, that should always be applied, is to manoeuvre at low speed, so as to have enough time to react and to better evaluate the situation; in this way, in case of accidental contact with other boats, you will not cause any serious damage.
Before unmooring check the following:

- That there are no other yachts manoeuvring nearby;
- That the mooring ropes are not damaged;
- That the fenders are in place and well secured (in the event of wind or undertow, equip the crew with fenders to avoid damage);
- That there are no floating objects or loosen ropes which can damage the propellers.

If the yacht is moored with the stern to the shore:

- Undo the stern lines, haul in the chain, until distant from the shore, and head to the exit.

If the mooring is on the side:

- Ease away the mooring rope from stern, warp on bow rope to move away the stern from the shore, manoeuvre for way out.

11.8.1 Leaving the mooring

The yacht is steered by means of the steering wheel that moves the rudders (rudder operation is independent from the engine operation).

In case of need and/or when in confined waters, manoeuvre the yacht by using the engines (changing the rpm and reversing the engine direction of rotation).

It is a good rule not to leave the steering wheel, particularly when cruising at high speed or in confined waters.

Do not exceed the speed limits when operating in confined waters, harbours and wherever required.

Keep in mind that the rudders effect is proportional to the propellers rpm and to the yacht fresh way, especially with headway; as a result of an high rpm and an high speed, the rudder efficiency is high, while when the engines are idling, with low fresh way, the reaction of the tiller angle is almost negligible.

WARNING
Before casting off the moorings, disconnect the electrical cables and the pipes connecting to the shore.

11.8.2 Mooring manoeuvre

Before setting back for the harbour, stop in free waters and test the gear boxes and the bow/stern thrusters. Besides check:

- That mooring lines are ready for use;
- That the mooring point and the berthing course are free from incoming, leaving or moored boats or boats with the signal of unsteered boat at shore;
- Check that on the main electrical panel, all necessary uses are supplied (anchor winch, bow/stern thrusters, etc..). Disconnect unnecessary uses;
- That the interceptors are in a raised position;
- That the yacht hook is easily accessible and does not hinder any passage;
- The operation of audible and visual warning devices;
- In case of at-night mooring, have a torch light (possibly operating) handy;
- That the passengers will not interfere with operations and, if participating, they know whom to listen to and what to do;
- That mooring ropes and fenders are correctly arranged.

If necessary, raise the interceptors and reduce the speed.

If the yacht is moored with the stern to the shore:
- Warp on stern ropes and on an anchor log, so as to haul the shore.

If the mooring is on the side:
- Warp on bow and stern ropes, so as to haul parallel to the shore.

11.8.3 Unattended mooring

If the yacht is moored and left unguarded, operate as follows:

- Close sea cocks and overboard drain valves of sea water circuits.
- Check the condition of the main electrical panels and disconnect all unnecessary uses.
- Check all on board compartments, portholes, skylights and bilge.
- Ensure that the yacht is safely moored.
- Disconnect all unnecessary uses.

CAUTION

The electric power supply from shore must be disconnected, especially if the yacht is left unattended for a long time.
It is necessary to recharge the batteries periodically.
Overboard outlets and drain pipes should be regularly checked, in order to ensure good buoyancy.
The electric system should be regularly checked, in order to prevent fires on board.

CAUTION

Inform the harbour manager of the arrangement of the on-board fire-extinguishing system and the activation of the fire-extinguishing control.

CAUTION

Disconnect all pumps of the yacht.

11.9 OPERATION AND PRECAUTIONS DURING NAVIGATION

During navigation, carry out constantly following checks:

Continually:
- Keep constantly an eye on the parameters indicated by the instruments and verify the absence of alarms.
- Check the values of the ammeters of the engines drives.

Every hour:
- Check that the magneto-thermal protections on the electrical panels have not been triggered.

Every 2 hours:
- By opening the access hatch of the engine room, check for the bilge condition, the presence of unusual noises, the possible presence of smoke or steams.

Every 4 hours:
- Check the condition of the bilge at bow.
- Check all cabins, bathrooms and the closure of portholes and skylights.

11.9.1 Shallow water navigation

DANGER

Use extra caution in shallow water or where underwater/floating objects may be present. Hitting an object at high speed or at an acute angle can seriously injure people and damage the yacht.

CAUTION

Constantly check depth and sea bottom shape with the aid of nautical charts and on-board instruments.

11.9.2 Navigation at night

During night navigation, always switch on navigation lights.
The same recommendations apply to preparation and checks during navigation as for daytime navigation.

CAUTION

At night, the good sight of the crew can be particularly advantageous. Getting used to darkness requires several minutes, during which the ability to see is strongly hindered.
We recommend absolutely not to navigate at night at high speeds, to avoid hit against unexpected obstacles (floating or half-submerged bodies).

11.10 NAVIGATION IN SPECIAL CONDITIONS

11.10.1 Navigation with bad weather conditions

Your yacht has been designed for safe comfortable use, under all weather and sea conditions, bad or favourable; in any case, the navigation safety (especially with bad weather) depends mainly on the Captain's behaviour, who should either not set off or reduce the yacht's speed, sometimes considerably, and steer the yacht with the proper attitude.

It is very important during navigation in harsh weather, to make sure that all pieces of furniture, hatches, and mobile parts, are duly fastened or stowed, to avoid damages and above all to avoid hurting persons on board.
The reliability of the machinery, also due to a perfect maintenance, the scrupulous check during the pre-navigation phase and a Captain of proven experience assume, under adverse sea and weather conditions, an even greater importance.

WARNING
CUSTOM LINE declines any responsibility for the improper use of the yacht, in relation to the wave height conditions.

WARNING
Before undertaking navigation, it is necessary to be aware of the sea and weather conditions you will find along the transfer route and in the area you want to reach.

BEAUFORT SCALE	DESCRIPTIVE TERM	WIND SPEED		PROBABLE WAVE HEIGHT (metres)	
		m/sec	Knots	Aver-age	Max
0	Calm	0 - 0,2	Up to 1	-	-
1	Light air	0,3 - 1,5	1 - 3	0,1	0,1
2	Light breeze	1,6 - 3,3	4 - 6	0,2	0,3
3	Gentle breeze	3,4 - 5,4	7 - 10	0,6	1,0
4	Moderate wind	5,5 - 7,9	11 - 16	1,0	1,5
5	Gentle wind	8,0 - 10,7	17 - 21	2,0	2,5
6	Fresh wind	10,8 - 13,8	22 - 27	3,0	4,0
7	Strong wind	13,9 - 17,1	28 - 33	4,0	5,5
8	Gale	17,2 - 20,7	34 - 40	5,5	7,5
9	Strong gale	20,8 - 24,4	41 - 47	7,0	10,0
10	Storm	24,5 - 28,4	48 - 55	9,0	12,5
11	Violent storm	28,5 - 32,6	56 - 63	11,5	16,0
12	Hurricane	Over 32,7	Over 64	14,0	

DANGER
Manoeuvrability is at high speeds considerably reduced, so speed should be decreased before making sharp turns in either direction to avoid losing control of the yacht.

11.10.2 Navigation with only one engine

Your yacht is driven by two powerful propulsion systems designed to operate together and at the same time.

In case of failure of one of the propulsion systems, you may navigate with only one engine.

Therefore we suggest You to:
- Shut off the failed propulsion engine;
- Set the position of the steering wheels in the opposite direction of the failed propulsion system; in case the steering wheels cannot contrast the asymmetric push of the operating system, lower the trim tab on the side of the failed system, or reduce the speed;
- Head to the nearest landing at a reduced speed;
- Keep the yacht at a speed that allows the best manoeuvrability.

In case one engine stops due to a failure and the gear box is in idle position, during navigation keep constantly an eye on the oil temperature of the gear box connected with the failed system.

The propeller shaft is kept rotating thanks to the water flow through the propeller, under these conditions also some parts of the gear box are kept rotating.

Should the temperature increase excessively over 80 °C, lock the propeller shaft by engaging the gear box: in this way the resistance will be higher, because the gear box is jammed, but oil will not overheat.

WARNING

Your ship has been designed to navigate driven by two engines; please remember it is possible to navigate with one engine only in case of emergency and for a very short time.

DANGER

It is absolutely forbidden to perform reverse run with one of the two engines stopped. This operation is allowed only if the life of the persons embarked and the safety of the yacht is in danger. However, the engine running must not run at more than 1000 rpm.

11.11 ENGINE EMERGENCY SUCTION FROM THE BILGE

In the engine room there is the bilge emergency draining system, which operates with shunters, which allow using the sea water pumps, driven by the propulsion engines as draining pumps.

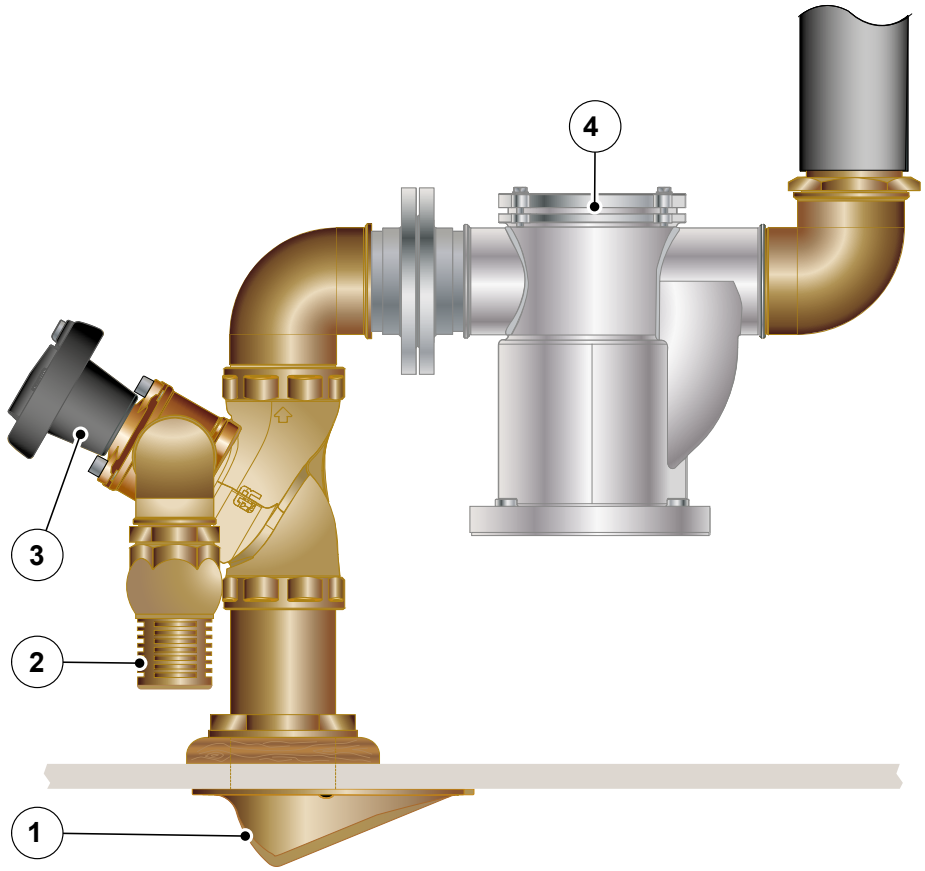
The diverters are valves which, in normal position, ensure the sea water suction for engine cooling, through the sea cocks and the sea water strainers.

In case of emergency, use the handwheels of both valves, taking them to the emergency position; the suction of the pumps, driven by the engines, is now directly diverted towards the bilge.

Should it be necessary to use this draining system, the bilge level must be checked continuously, because in case of complete drainage, the engines will not be cooled down.

CAUTION

In case of emergency it is possible to suck the water from the bilge through the sea water pumps of each engine.



1. Engine sea cocks
2. Bilge emergency suction cocks
3. Suction selection handwheel
4. Engine sea cock strainers

CAUTION

When the bilge is empty, remember turning the valves back to sea water intake position, in order to avoid damaging the engines.

Operating diagram:

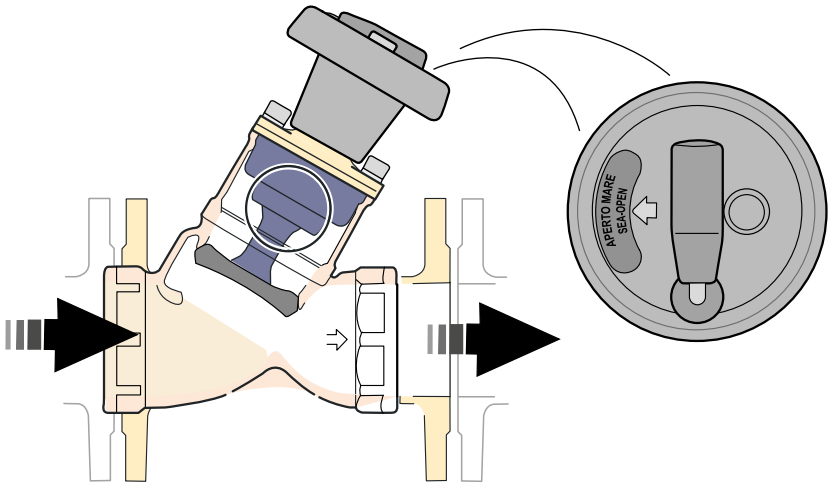
All valves are provided in the SEA-OPEN position.

Before proceeding with the installation, visually check the passage and that the wording through the handwheel window reads: **APERTO MARE / SEA-OPEN**.

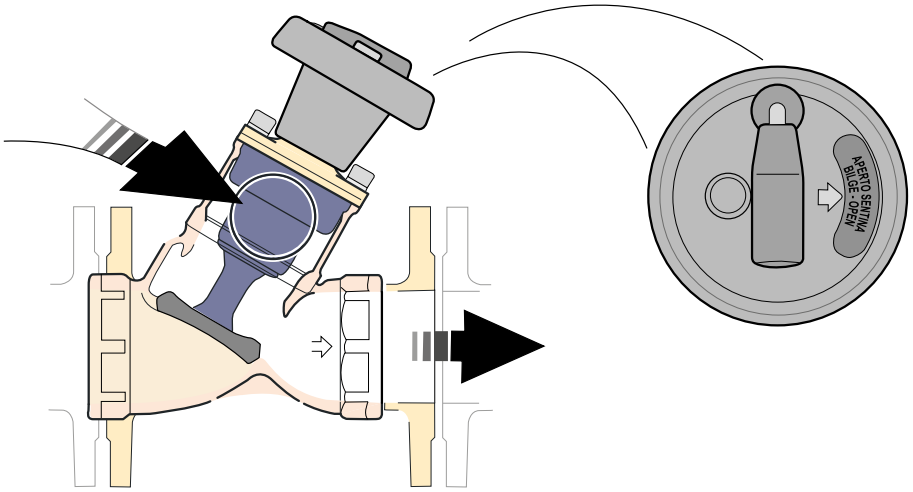
The direction of the water flow through the valve must align with the arrow on each valve.
The valves can be installed both in a vertical or horizontal position (in the flanged version using the special seals available on request) maintaining the handwheel facing the operator.

The handwheel is provided with a position indicator to simplify its use.

SEA-OPEN

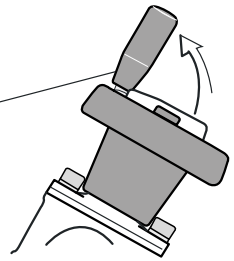


BILGE-OPEN

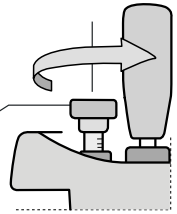


To enable water inlet from **SENTINA / BILGE**, proceed as follows:

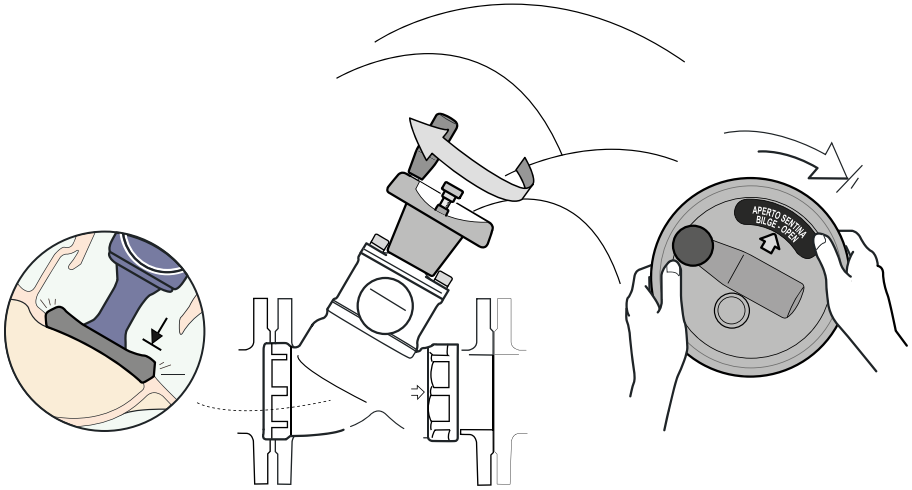
Sollevare la leva del volantino
Raise the handwheel lever



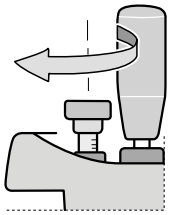
Svitare il perno sino al suo arresto
Unscrew pin until it stops

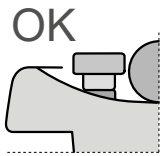


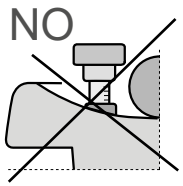
Turn the handwheel clockwise until it stops. In this phase the shutter, located in its housing, offers resistance. With both hands, close until it mechanically locks. The wording in the handwheel window will read: **APERTO SENTINA / BILGE OPEN**, which indicates the inlet position.



Tighten the pin until it stops.







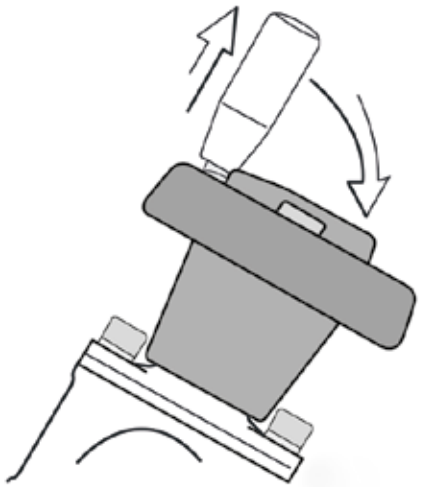
CAUTION

The pin is correctly tightened as shown.
A complete closure of the pin has the purpose of preventing any movement of the shutter.

Lower the handwheel lever into its seat.

To enable water inlet from **SEA**, proceed as described above, turning the handwheel counterclockwise.

Once the operation is finished, the wording in the handwheel window will read:
APERTO MARE / SEA-OPEN which indicates the inlet position.



Maintenance:

During ordinary maintenance, which must be carried out while the yacht is in dry shore, it is recommended to extract the valve control block as follows:

Make sure the indicator is set to **SEA-OPEN** (first operate the handwheel anticlockwise).

- Loosen the screws with an Allen wrench and extract the mechanism from its body, paying special attention to the rubber components (gaskets).

DO NOT remove the handwheel from its seat!

- If necessary, clean the rubber components with fresh water and soap, do not use any chemical cleaners and pay attention not to damage the gaskets.
- If necessary, the control block can be replaced with a new one.
- When reassembling, use silicone grease, and pay special attention to the seats of the gaskets.
- Make sure to insert the mechanism in "**APERTO MARE - SEA OPEN**" position (first turn the handwheel counterclockwise as indicated in the **INSTRUCTIONS**).
- Tighten the screws with a torque of approx. 9 Nm.

11.12 TOWING THE YACHT

The size of the yacht does not allow its transportation by land, therefore, in case of need will have to be towed by a boat authorized to do so.
In the case of towing or trailer, the peaks must be fixed as shown in the figure to share the effort and centre the shot.
It is good practice, after giving time to the cleats, take the top, giving time to the winch: in this way you will have the advantage of greater strength points.
The length of the towing cable must be determined according to sea conditions, so as to amortize the throw without damaging the mooring arrangements.

DANGER

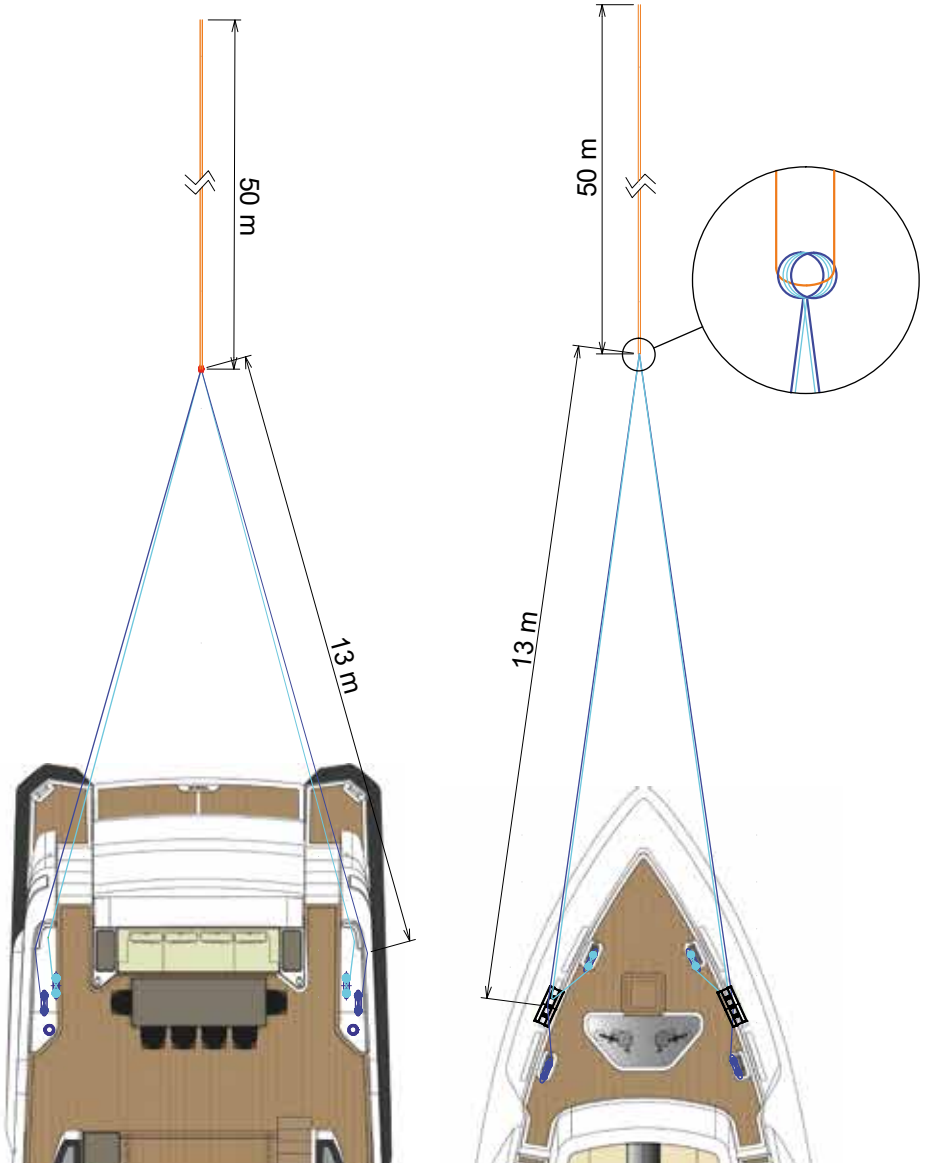
Do not approach and do not carry out any kind of intervention on transmission during the towing because propeller can turn.

Precautions before starting towing:

- Close all the sea valves to avoid accidental water entry;
- Lock the propeller shafts to prevent damage to the gearboxes;
- Maximum towing speed: 5 knots;
- The following procedure applies to calm sea and good weather conditions.

Procedure:

1. Use 2x15m mooring ropes as primary emergency towing arrangement.
   - Prepare both ropes with a bowline knot at one end.
   - Pass the ropes through the roller and fix them on the FWD cleats on the fore deck.
2. Use 2x24m mooring ropes as secondary emergency towing arrangement;



- Prepare both ropes as above and fix them on the AFT cleat on the fore deck.
- Adjust the length of the rope to be similar to the primary towing arrangement.

3. Use the orange towing rope to connect to the towing boat.
- Double the rope by passing through the bowline knots.

WARNING
In case it is necessary to tow another boat, do this under calm sea and calm wind conditions only, and tow boats with a displacement not exceeding 50% of your yacht displacement; in case of emergency, if towing is not possible, give help by taking the people of the other boat on board, as many as permitted and possible, and reach the nearest harbour.
Anyway, inform immediately the Port Authority.

WARNING
Towing navigation can be carried out continuously for 8 hours, provided that you constantly monitor the gear box oil temperature, which must not exceed 80 °C.
If temperature exceeds 80 °C, stop navigation and wait until temperature lowers.
When the engine is shut off, the throttle position is unimportant.

CAUTION
Always draw other boats or let your yacht be towed at low speed. Never exceed the speed of the drawing boat when you are being towed.

CAUTION
Fasten your yacht to a towing rope so that it can be released when loaded.

CAUTION
It is the Owner's/the operators' responsibility to make sure that the mooring ropes, the towing ropes, the anchor chain(s), the anchor lines and the anchor(s) are suitable for the intended use of the yacht, i.e. the resistance of the ropes or chains must not exceed 80% of the resistance to breaking of the relevant strength point.
The Owner should also determine which action is necessary when fastening a towing rope on board.

CAUTION
Do not stand near the ropes during drawing (or towing) operations, a rope that breaks can be extremely dangerous ("whip lash effect").

DANGER

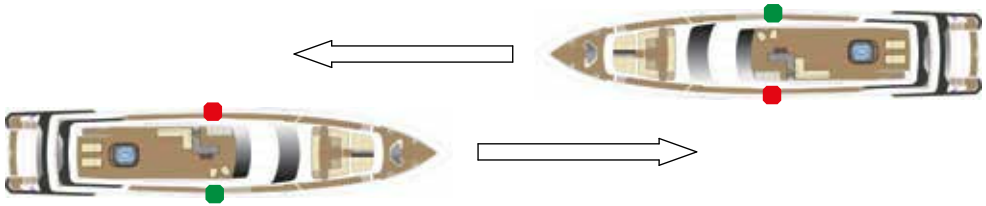
During towing navigation, the propeller shaft has to be kept turning by the water flow through propeller. We recommend not to carry out any kind of service on the thrust devices (engines, gear boxes, shafts, etc.).

11.13 YACHT STEERING RULES

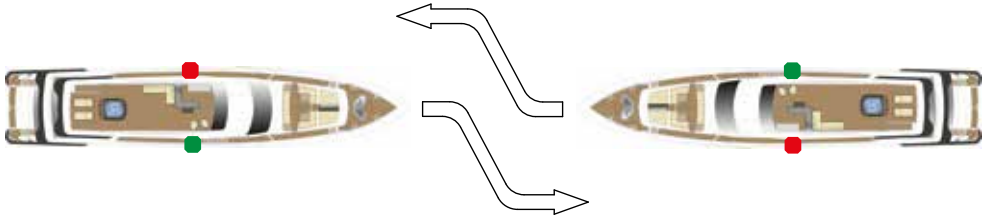
Ship in sight
We consider three ways of sighting of another yacht at sea:
- Encounter, cross and getting ahead

Generally, the yacht with limited ability to manoeuvre has the right of course.
We leave free the course and to pass it to stern. The yacht that has right of course is called privileged yacht. It can maintain its speed and course. The ship penalized is that must adjust their speed and/or course to maintain the due distance from the privileged ship.

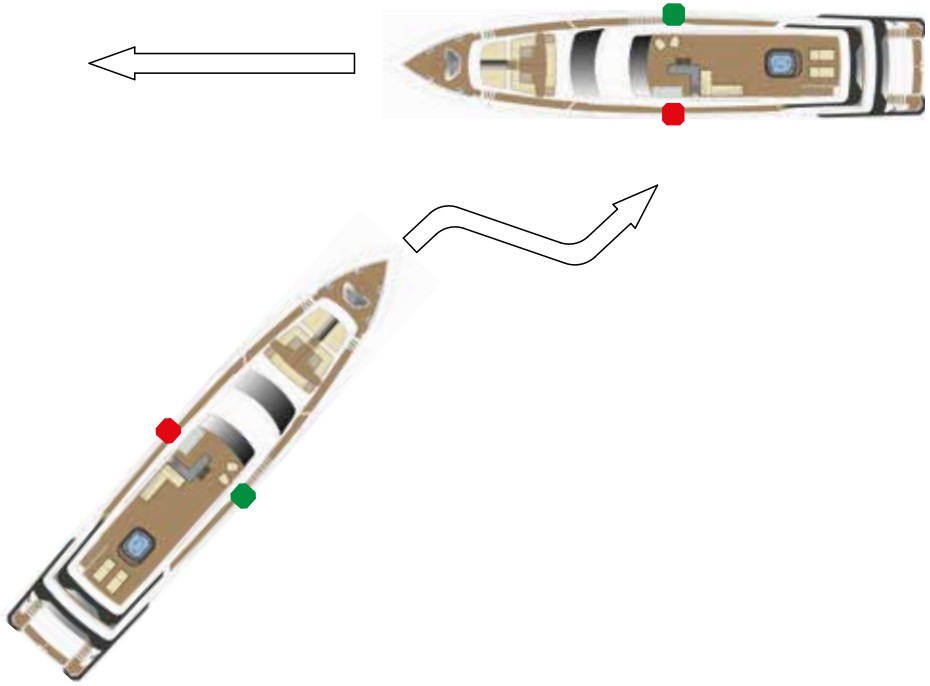
Encounter
When you meet another yacht that goes in the direction parallel, both yachts must adjust their speed and course.



When two mechanical thrust yachts are meeting on intersecting or nearly intersecting courses such as to give rise to the risk of collision, each one must change its course to starboard so that each one passes on the left of the other.

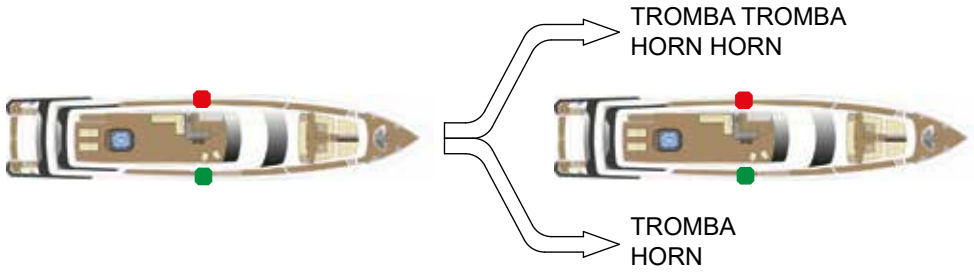


Crossing
When two mechanical thrust yachts are crossing, creating a risk of collision, the one that has the other yacht at its starboard must move away and, if the circumstances so permit, avoid passing on the bow of the other yacht.



Overtaking
Overtaking is defined as when a ship coming from a direction of more than
22.5 degrees at stern compared to the yacht that it plans to overtake, such that it can only see the light of the yacht stern but neither of the two side lights.

If you find yourself having to pass a yacht proceeding more slowly than you and that is on your course, your yacht is the one penalized. Make all the necessary adjustments to avoid the collision and pass to the bow or starboard. Announce your intentions by sounding the horn twice if you intend to pass on the bow, and one time if you intend to pass at starboard. The yacht that is reached by another yacht takes precedence over the latter and therefore must maintain the same course and the same speed without laying or manoeuvring.
The yacht that has the bow within a 135° angle (formed by the yacht stern light) is considered the yacht that can be reached.



CAUTION
Having the right of course does not relieve you from the responsibility of avoiding a collision.

CAUTION
Boats with limited ability to manoeuvre usually have the right of course. In the event of an imminent collision, prudence has priority over right of course.

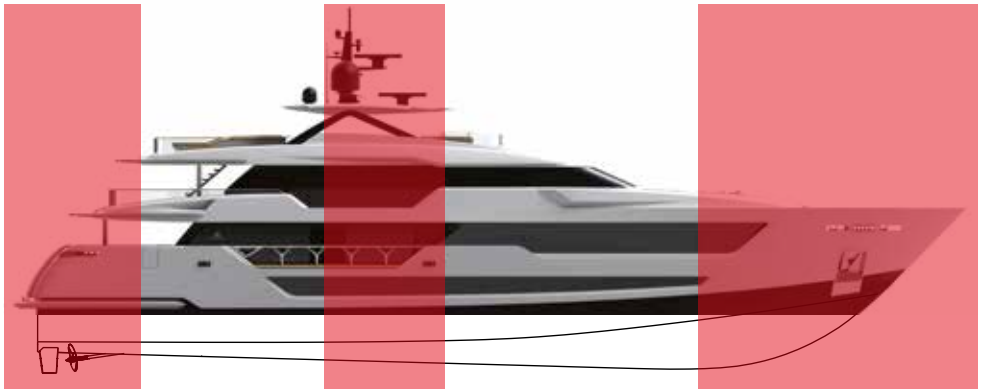
11.14 HAULAGE AND LAUNCH

CAUTION
The lifting method depends on the type of lifting equipment adopted therefore it cannot be suggested.

CAUTION
Before haulage and launching check: that nobody or unexpected material is on board and that materials are properly rigged and locked.

WARNING
Hauling and launching operations have to be carried out only by qualified personnel and in special shipyards and under their direct responsibility.
CUSTOM LINE declines any responsibility for damages to things or persons caused by the wrong performance of hereunder listed operations.

CAUTION
Never place the lifting straps in the areas highlighted on the drawing.



- Lifting equipment must be in a good condition. The towing bands must not be deteriorated and, if possible, must be covered with adequate protection so as not to damage the hull and the anti-

fouling system of the hull.
- The travel lift capacity must be greater than the yacht weight.
- Test the stability of the system, before lifting the yacht, the yacht gravity centre depends on the load and its displacement.
- On shore the yacht must be placed on a structure with at least twelve (12) support points of sufficient width and size as to evenly distribute the craft's weight.
- The hull inclination must be as "natural" as possible, e.g. it must be parallel to the waterline and not to the keel. This to prevent that liquids on board keep a normal level and that rainwater can be drained naturally.

CAUTION

Do not put the lifting straps in way of intakes, of sea discharge or of other protrusions.
Lifting straps must be positioned according to the loading conditions of the yacht at the moment of its lifting, because these vary remarkably, for instance, when the yacht is unloaded and dry or when the yacht is fully loaded. The lifting straps arrangement must each time be carefully evaluated, in order to prevent any damage to the yacht.

CAUTION

CUSTOM LINE declines all responsibility for the location of the lifting straps, the lowering of the yacht to the ground and the support points carried out in other Shipyards.

DANGER

During haulage and launch, never stay underneath or in proximity of the yacht.

Cradles (Optional on request).
CUSTOM LINE is capable of providing the cradles for a correct support of the yacht (optional on demand). CUSTOM LINE is not responsible for any damage resulting from the use of cradles different from those expressly produced by CUSTOM LINE.

Propping
It is a common procedure to use supporting props if no actual storage capacities are available. It is very important to take some basic precautions while positioning the supporting props for the yacht in order to prevent age to the hull structures, accidental falls of the yacht or injury to the involved personnel. The following list contains useful advice. We also recommend always having propping operations carried out by experienced personnel.
- Use props with adequate strength and stability (each keel prop must support at least 1/12 of the whole weight of the yacht).
- Use correctly dimensioned supporting plates to prevent negative weight concentrations.
- Place the props preferably next to transversal structural reinforcements (stringers).
- Locate the props along the supporting fins of the hull.
- Always place at least 6 struts along the keel, 5 throttle struts and 8 side struts and 4 adjustable trestles;
- Start by placing the keel supports appropriately spaced to distribute the load;
- It is important that the props have the same height in order to prevent that the load is concentrated mainly on one of them.

- Lower the yacht **very slowly** until it almost touches the keel struts, adjust the height of the struts until they are contact with the keel, so as to ensure the fair distribution of the load and a neutral buoyancy of the yacht ; keep some of the load on the travel lift;
- Ensure the side struts are properly spaced. Remember that the side struts are intended to ensure stability, but the overall load must weigh mainly on the keel throttle struts;
- Check the support for stability, then completely lower the yacht and remove the belts.

The suggestions above are to be considered as being generally valid for propping the yacht without damaging it or harming the personnel involved; however, since the propping conditions may significantly vary depending on the props used and the surface on which the props rest, the above suggestions must be adapted case by case.

CUSTOM LINE is therefore not responsible for any damage to the yacht occurring while the yacht is at dry shore on props.

CAUTION

CUSTOM LINE declines all responsibility for the location of the lifting straps, the lowering of the yacht to the ground and the support points carried out in other Shipyards.

CUSTOM LINE 140’

12

Hull and furniture maintenance

12.1 GENERAL MAINTENANCE OUTLINES

The yacht is equipped with a large number of sophisticated devices and systems, which require not only a certain care when it comes to use, but also regular maintenance to obtain correct operation.

One of the factors that might cause problems or faults, is usually the irregular use of the yacht and because of this, of the on-board devices.

Experience indicates that regular use of the devices normally gives fewer problems, and therefore, we recommend operating all on-board devices regularly, for short periods.

Daily checks and regular maintenance are important for maintaining equipment/components in the best working order and efficiency.
If the regular maintenance schedule is not correctly followed, the equipment's performance can deteriorate, causing reduced efficiency, a shorter life and the occurrence of unexpected problems which can compromise safety at sea.

The maintenance schedule is based on time intervals or running hours. For example, if a maintenance task is scheduled every 100 hours or 3 months, this task must be repeated at 200 hours or after 6 months, at 300 hours or after 9 months, and so on.
In case of a long period of inactivity (for example, during winter), it is advisable to lay up the yacht, possibly under cover.

CAUTION
Some general information about ordinary maintenance tasks, their schedule and procedures is provided herein with.
For further specific information referring to maintenance schedule, see Manufacturer Manuals of on board devices/components, issued by the various Manufacturers.

CAUTION
Look over the maintenance safety rules contained in this manual in order to act with the maximum safety and follow the indications here below.

CAUTION
During the replacements, remove the parts with care and order, in this way the assembly operations are as easy as possible.
Make sure to install genuine spare parts, in this way the system efficiency is not altered.
Sometimes the use of non-genuine spare parts may cause the withdrawal of the Manufacturer's warranty.

CAUTION

Check periodically that all equipment containing water is filled with the correct quantity of anti-freeze.
If the outside temperature drops below 0°C, all fresh or sea water systems are exposed to the risk of freezing and consequent breakage.
Systems especially subject to risks of freezing are all systems and devices containing either fresh or sea water.

WARNING

Before carrying out any maintenance and adjustment operation on the yacht, turn all necessary safety devices on and consider informing all per- sonnel, in particular persons operating nearby. In particular, place warn- ing signs in the areas concerned and prevent any device, if operated, from causing unexpected hazardous conditions, thus endangering the persons on board and/or property.
To avoid pollution, do not scatter any type of waste in the environment, and only use the dedicated disposal areas in the harbours.

CAUTION

When working in the engine room, switch magneto-thermal switches of the bilge draining pumps off, to prevent that fuel, lubricants and other liquid spilling causes sea pollution.

CAUTION

CUSTOM LINE declines all responsibility for the installation and operation of elec- tric, electronic or mechanical equipment improperly installed by third par- ties in a manner not authorised by the Shipyard.
CUSTOM LINE declines all responsibility with regard to tampering carried out by third parties on equipment installed in the Shipyard. Such tampering or unau-thorized installations will not only immediately void the warranty, it may also cause damage to the yacht and injuries to the people on board.
CUSTOM LINE declines all responsibility concerning regular maintenance op- erations scheduled by the Shipyard or by Manufacturers, but not carried out, on equipment/components, for which it is necessary to refer to the relevant Technical Manuals.

CAUTION

It is forbidden to use pressurized water on light appliances installed outside.

12.2 LONG PERIODS OF YACHT INACTIVITY

Following list only represents a general guide to give the customer an idea of the ordinary maintenances which should be carried out when the yacht remains stationary for a rather long period without being used.

We recommend carefully checking the instruction manuals of the single devices, because they often contain detailed information and very important specifications relevant to the maintenance of each device.

The following instructions NEVER REPLACE the specific instructions concerning each single device and issued by the device's Manufacturer.

- **Engines**
  Before winter time let fresh water flow into the salt water circuit, check the antifreeze liquid, the sacrificial anodes against the galvanic currents, remove salt build-ups and spray protective agents. Carry out the maintenance program of the propulsion engines indicated in the specific use and maintenance manual.
- **Generators**
  Use the same procedure as for the engines.
- **Gear boxes**
  Carry out the sheduled maintenance for gear boxes.
- **Batteries**
  Check the liquid level and regularly charge the batteries, protect the terminals with Vaseline grease; the best solution would be to disconnect the batteries from the system and to charge them regularly with a separate battery charger, but this is not always possible on yachts.
- **Watermaker**
  A proper procedure provided by the supplier in the instruction manual has to be followed when the watermaker is not used for a long time.
- **Washers and Dishwashers**
  Carry out an empty washing cycle, carefully remove all detergent residues,and dry thoroughly. Clean the filters.
- **Sun-deck cushions**
  Remove all sun-deck cushions and store them into a dry place.
- **Aluminium and steel**
  Wash all metallic parts with fresh water and protect by rubbing with a rag soaked into Vaseline oil.
- **Wood and interior upholstery**
  Cover the cushions of sofas with sheets and above all cover all windows with the relevant covering sheets, so that as little light as possible is pro- jected inside, because the UV-rays fade the wood and tissue colours.
- **Teak wood deck**
  Wash with water and neutral soap and treat with proper products. Sandpaper if strictly necessary.

CAUTION

DO NOT USE mechanical or forced water jet equipment (e.g. pressure washers, etc.) to wash the deck, as this force alters the wood and the caulking sealants (it detaches the microparticles) causing damage in some cases even radical (e.g. detachment of the staves).

CAUTION

DO NOT USE alkaline-based or acid-based detergents or aggressive detergents (soda, solvents, ammonia, etc..) to wash the deck; their aggressive degreasing action corrodes the wood (it eliminates its natural water repellency and whitens its natural colour), while the caulking sealant modifies its physical-chemical qualities, softening the surface, damaging the waterproofing, sealing and anchoring of the deck.

- **Side windows**
  Wash with mild soap and water.

CAUTION

When using the harness support for personnel involved hanging kit for washing the side windows in the hull are prohibited the use of a single point of attack.
For more information on the use and maintenance of the system, refer to the manufacturer's documentation provided in the appendices to this manual.

- **Sacrificial anodes**
  Check their wear and if necessary, replace the hull, propellers shafts and interceptor anodes, etc.
- **LOG Transducer**
  Pull out the propeller, clean it and apply the proper propeller plug.
- **Windscreen wiper**
  Wash with fresh water and lubricate with Vaseline oil.
- **Anchor winch**
  Check the oil level in the gear box where possible. Check the oil level, protect the electrical components with a suitable protective spray and lubricate with silicon grease clutches and wildcat.
- **Water tank**
  Wash with disinfectant, drain the fresh water circuit, especially if frost is forecasted.
- **Fuel tank**
  Cleaning by means of a decanter especially if there are traces of water in the fuel.
- **Grey water tank**
  Pour sterilizing products into the washbasin, showers, and bidet wastes. Empty the tank and clean, ensuring the float is efficient.
- **Black water tank**
  Pour a sanitary product containing Paraformaldehyde (available in camping equipment shops) into the WCs and rinse the tank with this mix a couple of times. Drain the tank completely.
- **Air conditioning**
  Before winter:
  - Let water flow in the salt water system.

  After winter:
  - Check the anti-freeze mix in the fresh water circuit: top-up or replace it if necessary (perform replacement at least every two seasons);
  - Carry out the maintenance operations suggested by the Manufacturer.
- **Tender engine**
  Wash with the fresh water contained in the cooling system of the engine. Carry out the maintenance as recommended by the supplier.
- **Bow and stern thruster**
  Protect the electrical components with a proper spray and check the oil level.
- **Electro-hydraulic control units**
  Protect with the proper sprays and check the oil level.
- **Fire extinguishers**
  Check the loading condition and expiry date for regular inspections.
- **Safety equipment**
  Check the expiry dates of the self-inflatable means, flares etc.

- **Refrigerators**
  Cleanliness for all and protection for those outside in case the ship remains outdoors.
- **Engine room**
  As for the engine room, we suggest carrying out a general cleaning, by removing all traces of salt drifts on devices and protect all electric, mechanic and hydraulic devices, by spraying them with protective agents.
- Clean all cabins and inspect all dunnages on-board.
- Check all hatches seals and lubricate their contact with appropriate silicone lubricant.
- Clean fan coils with an air jet, sucking the dust from the back net.
- Inspect the external hull and all the components: propeller, anodes, supports, transmission systems, interceptors, seacocks, manoeuvring thrusters.
- Carry out laying up of the yacht in a sheltered and dry place. If the yacht is stationed outside, cover it with a waterproof sheet, in such a way that allows ventilation. Otherwise the formation of damaging moisture could be helped.
- Wash the yacht with fresh water.
- Check all systems and fastenings on the yacht: damages, wear, cracks are signs of unsuitable use. Repair the damaged equipment. If necessary, fit new ones.
- Check the efficiency of limber holes and that they are not clogged so as to cause the leaking of the bilge system.
- Check the fastening of the partial or total covering of the yacht.
- Disconnect all unnecessary utilities.

DANGER

During recharge the batteries produce explosive gas. Do not approach to recharging area with free flames or sparkles.
Avoid wrong connections; never connect a positive terminal (+) with a negative one (-).

12.3 RE-USE OF THE YACHT AFTER A LONG INACTIVITY

CAUTION

After a long period of yacht inactivity, carry out all above-listed operations and following checks:

- Check the condition of all hoses and connections of the steering system, interceptor, gangway, swim ladder, etc.
- Start the engines.
- Stop the engines.
- Clean fuel filters. Replace engine oil filters and add oil to the engines if necessary.
- Check all bilge pumps and their operation.
- Check the operation of the black water, grey water and sea water pumps.
- Check the operation of all on-board instruments used for navigation.

Engines:

After the winter, check engines oil, gear boxes and replace them if necessary. Check oil and fuel filters and replace them if necessary.

- Adjust the belt tension of the alternator belts both of engines and generators.
- Fill the fuel tank. Vent the air of the fuel system.
- Start propulsion engines.

- Let the engine run at middle speed for some minutes, before letting them run at full speed.

Generator:

- Start the engine of the power generator.

Hull:

- Verify the hull.
- Have the bottom hull accurately cleaned, as well as the rudders and interceptors with brushes (with water) or a jet-cleaner (dry) to remove seaweed and scales.
- Check the paintwork condition of the hull. If necessary, have 2 coats of suitable antifouling paint applied by specialized personnel.

Propellers e anodes:

- Verify the propeller condition and possible leaks from the seals, if necessary adjust them.
- Check the conditions of the sacrificial anodes; if necessary, replace them.

Batteries:

- Check the charge of the batteries, and that their terminals and housings are dry and clean.

12.4 HULL MAINTENANCE

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Bottom hull	Periodical cleaning and check of antifouling treatment (as required according to stationary area, but at least every three months) Check/restoration Preparation of the surface of an already treated yacht	The length of the antifouling effects depends mainly on the conditions of the waters where the yacht is stationed. **CAUTION** To remove the old antifouling, do not use sandblasting systems that could damage the hull. As suggested by the antifouling manufacturers, use paint removers or, as an alternative, wet sanding. The Shipyard uses high-quality ant-fouling paint and applies two layers. **CAUTION** Bad maintenance condition (barnacles, etc..) may cause cavitation and damage shaft, rudders, propellers, etc.. **CAUTION** Small areas of paint may peel off from the propellers even after a short period of operation.

12.4.1 Bottom hull

Antifouling treatment
If scaling forms on the hull, this causes a considerable slowdown and in the long run can damage the hull. When you choose an antifouling paint for your yacht, it is important that you find the proper product, suitable for your yacht and for the waters in which you are going to navigate. Contact the CUSTOM LINE after sales & service department.

Check/restoration
The cleaning and checks have to be carried with yacht at dry shore or with the help of a diver. Have the repairs done only with yacht at dry shore.

WARNING
To clean or check the yacht in water, disable engines and generators ignition.

CAUTION
There are some areas of the hull (base fixing area for propeller shaft supports, submerged discharge areas, areas around the operating propeller tunnels and shaft outlets, etc.) where work can be carried out after the construction of the hull. Fillers are usually employed in these areas and over time they can produce localised defects, such as bubbles or small cracks. These little faults do not impair the hull's mechanical strength at all. To repair them just sandpaper the area, remove the bubbles, and apply fillings suitable for the bottom hull.

- Have the bottom hull accurately cleaned, as well as the rudders and flaps with brushes (water) or a jet-cleaner (dry) to remove seaweed and scale.
- Check the paintwork situation of the bottom hull. If necessary, have 2 coats of suitable antifouling paint applied by specialised personnel.

Preparation of the surface of an already treated yacht
Carefully check the old anti-fouling paint to see if it is still good or if it needs a new layer. Make sure that the new product is compatible with the old one. Contact the CUSTOM LINE after sales & service department. If the old antifouling is crusty, thick and tends to scale off, then remove it and start the treatment as for a new yacht.

CAUTION
Antifouling is poisonous and should never be burnt, use only authorized disposal procedures and in case of doubts contact the authorities in charge. The sandblasting operations and removal of antifouling must be carried out with suitable clothes and protections.

WARNING

During the application of antifouling, make sure that following parts of the bottom hull are not painted:

- Depth sounder transducer
- LOG speed sensor propeller
- Sacrificial anodes
- Shafts and propellers.
- Underwater lights;
- Hull porous plate;
- Reference anode of the monitoring system.

12.5 GENERAL MAINTENANCE

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Gel-coat **CAUTION** The alteration of colour and brightness in areas which are highly exposed is considered normal. The necessary polishing has to be considered as normal maintenance. **MAINTENANCE** Thoroughly clean all parts at least once a month. At least once every 6 months check the condition of the fibreglass. Polish all parts as needed and at least once every 2 years.	Formation of bubbles Regular cleaning (as required) Formation of cracks Regular cleaning (as required)	In some areas of the yacht bubbles can occur on the gel-coat and they may burst over time, thereby showing the underlying structure. The inconvenience is usually found in areas with accentuated edges due to air bubbles that remain trapped between the structure and the gel-coat during processing, despite the checks carried out by Quality and Control personnel. The bubbles that burst can be easily repaired by filling them and touching them up with the gel-coat that you can request from the Site Assistance Service. **CAUTION** Always wash using neutral products. In case of particularly persistent dirt, do not use products containing ammonia which can turn the surface yellowish. During navigation, some structural parts of the yacht inevitably undergo bending, causing traction and compression forces on the hull and gel-coat. The different elasticity coefficient of the gel-coat and the hull induces the formation of cracks on the surface of the gel-coat, especially in areas most subject to stress, such as near the cleats, stanchions, etc. However, this disadvantage does not in any way compromise the mechanical and structural features of the hull. **CAUTION** Do not use sandblasting systems to remove the gel-coat. As required by gel-coat manufacturers, use appropriate products or alternatively sand.

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Wood and upholstery	Regular cleaning	The worst enemies of these materials are light and moisture; to protect them, they must be kept away from direct light as much as possible and the interior must be ventilated as soon as the weather conditions allow. The use of external awnings is extremely important because there is no species of wood, either natural or dyed, which, when exposed to the sun's rays, does not undergo a change in colour. The woods used for the yacht's fittings are exclusively natural-based materials carefully selected and the painting cycles with which they are treated comply with environmental regulations. Furniture made of wood, precisely because of the natural origin of both the material and the treatments, may be subject, if not properly treated and maintained, to: • Colour variations due to exposure to direct and continuous light. It is advisable to shade the heavily exposed parts with the internal curtains supplied with the yacht; • Retention of dirt if not cleaned promptly, given the characteristic absorbency of wood fibres. It is recommended to use non-aggressive products; • Scratches and marks if in contact with sharp or metallic objects, due to the inevitable relative "softness" of the wood. Even if the production processes have been carefully studied and tested, the furnishings and fittings made of natural wood may undergo variations in colour over time due to the "natural" maturation of the material due to ageing. Despite the painting cycles developed after many years of experience, wood remains a "living" material, and therefore subject to movement and settlement. Scratches causes by bumps must be repaired immediately, to avoid the blackening of the wood below. The technical staff of the CUSTOM LINE after sales & service department will advise you about the maintenance level you have to apply at the end of each season's use. Correct maintenance will allow you to avoid deterioration which is expensive to repair. **CAUTION** The extremely precious finishes of the polish-varnished woods used for bathroom floors and cockpit tables is the result of careful work: they are water resistant but at the same time delicate and need careful maintenance. Such surfaces must therefore be dried after use or after rain and must be washed and maintained regularly.

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Wood and upholstery	Regular cleaning	**CAUTION** Upholstery and wooden parts: the leather and wooden parts have to be treated as natural products, subject to colour alteration, particularly if the necessary precautions for good maintenance are not taken. CUSTOM LINE therefore reserves the right to evaluate any problems and its own responsibility according to case. **MAINTENANCE** At least once a week, carefully wash and clean all teak outside parts, and at least once a year perform a protective treatment with suitable products. **CAUTION** Current use: • Do not walk or jump on the cushions; • Prevent the cushions from turning yellow due to direct exposure to sunlight; • Prevent the absorption of water or moisture by not leaving the upholstery exposed to bad weather, particularly during periods of inactivity. Cleaning: • Remove ordinary dirt with a warm water solution and neutral soap: do not use deter- gents or solvents; • Dry with a soft rag, not leaving any residues. Preservation: • Store clean, dry upholstery in a cool, ventilated and dry area; • Do not place heavy objects on upholstery when stored.

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Teak	Regular cleaning	The characteristic of teak is its resistance to weathering and therefore, it does not require maintenance. Over time, teak tends to assume a particular silver colour that may not appeal; in this case, to maintain the original colour of the teak, it needs to be treated regularly with specific products (e.g. teak wonder). If the wood has smears that cannot be removed with normal washing, it is necessary to sand the wood to remove stains, and then repaint with wonder teak. You must use fresh water and manual brush (no hard bristles) at least once a day. This will remove any machinery, common dirt from feet and shoes, and normal environmental salt. This process, if carried out regularly, allows constant maintenance of your teak and caulking. In this case only time and wear will naturally deteriorate this product. **CAUTION** Do not clean the teak with stiff brushes, as even rubbing the grain lengthways can damage the softer grain of the wood. Non-black caulking may not behave in the same way as the black one. Any aesthetic issues, such as surface mildew, colour variations, dirt in the caulking are not defects and may be prevented with regular maintenance and service on the teak surface and caulking.

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Teak	Regular cleaning	**CAUTION** Washing the deck with mechanical equipment or with a jet of pressurised water (hydro-cleaners, for example) IS STRONGLY ADVISED AGAINST since this force alters the wood and the caulking sealants (detaches the micro-particles), even causing serious damage in some cases. Washing the deck with alkaline or acid-based detergents, or however with aggressive agents (soda, solvents, ammonia, etc..) IS STRONGLY ADVISED AGAINST. Their aggressive degreasing action corrodes the wood (eliminates its natural water-repellent properties and bleaches its natural colour), while the physical-chemical properties of the caulking sealant are altered, with its surface portion becoming softened and the impermeability, sealing and anchorage of the deck becoming damaged. **CAUTION** Be careful when cleaning the exterior painted parts. The use of alkaline or acid-based soaps or detergents, which are usually used to remove dirt or salt, can settle on the deck and irreparably damage the teak and caulking sealant. Therefore, teak and caulking sealant must be insulated when these washes are carried out. Therefore, when these washes are carried out, it is necessary to isolate the teak and caulking sealant from any deposits, even temporary, of soaps and/or detergents. If it is not possible to cover the deck when cleaning the structure, we recommend wetting the deck with plenty of fresh water. We recommend the same procedure when refuelling. If fuel seeps into the wood or caulking sealant, the deck will be irreparably damaged there. Use a neutral detergent to clean the teak.

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Ceilings Panels	Regularly check the flatness of the panels and / or any discontinuities or steps between the ceiling panels	Whenever the ceilings are disassembled, it is compulsory to check the status of the Fit Lock or/ and 3M Dual Lock fastening systems, breakage of the teeth, and/ or the entire system. **WARNING** Do not install Fit Lock or 3M Dual Lock ceiling panels with damaged fastening systems , due to a possible reduction of their retention power. Damaged parts must absolutely be replaced with new ones. In order to be sure that the ceilings have been reassembled correctly, check flatness with the other ceiling panels and the absence of discontinuities and steps between one ceiling panel and the others.

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Light alloys and stainless steel	Regular cleaning	It is a good rule to accurately wash the entire yacht after each navigation, in particular all metal parts that may be damaged by sea water. Have plenty of fresh water sprayed on handrail, windows, skylights, rub rail, anchors, cleats and ladder. Protect all metal parts with Vaseline oil periodically. **MAINTENANCE** At least once a year check the fastening of all metallic parts of the yacht. **CAUTION** The stern glass door is not watertight, so do not point the bolt of water towards the window, when washing. **CAUTION** Never use brushes or abrasive rags on metallic fittings, not even on rusty spots, scratches on the surface result in a less shiny appearance and diminish the mechanical features.

<table>
<tr><th>COMPONENT</th><th>MAINTENANCE</th><th>NOTES AND PRECAUTIONS</th></tr>
<tr><td>Sun-deck cushions</td><td>Regular cleaning</td><td>Remove the cushions from the seats at regular intervals and let their underside and the seat surface dry. When washing or when it is raining, remove the cushions and stow them in a covered place; however, when cushions are wet, remove them from their seats, to prevent water or moisture from remaining trapped between cushions and underneath surfaces.
This could affect the gel-coat and also create osmosis bubbles and deteriorate the cushion cover. The cushions must be washed with running water; do not use jet-cleaners, brushes or abrasive sponges.

MAINTENANCE
At least every 6 months, check seams and fasteners.
At least every month carry out the washing of the cushions.</td></tr>
<tr><td></td><td>General Care and Cleaning Guide</td><td>• For light soiling, a solution of 10% PH neutral soap in warm water applied with a soft damp cloth. Rinse with clean water and dry.
• For heavy soiling, dampen a soft white cloth with a one to one (1:1) solution of an all- purpose and dye-free household cleaner and water. Rub gently and rinse with a damp cloth.

CAUTION
Do not use alcohol-based cleaning agents!

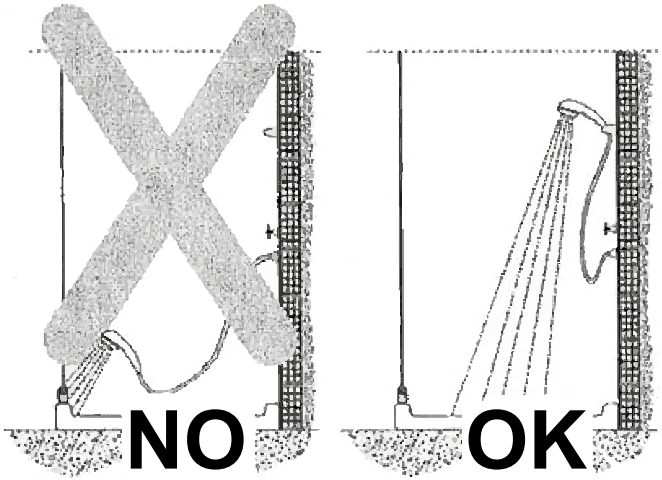
CAUTION
Do not use aggressive detergents and/or solvents, which will cause immediate damage and contribute to the deterioration of the material.</td></tr>
</table>

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Windscreen/windows	Regular cleaning	**CAUTION** Rags and chamois leathers used for cleaning glass must be replaced at least every 3 months. The inner side of windows and windscreen can be cleaned with non-aggressive and non- acid detergents for glass and a soft or paper cloth. **CAUTION** If, after normal cleaning, some traces of dirt or light scratches remain, do not try and remove them with mechanical means or using aggressive detergents, solvents or abrasive products. Contact the Service Department. **CAUTION** For cleaning the outer side of coloured or mirrored (pyrolytic) windows and wind-screen: • Evenly wet the whole surface of the glass with plenty of fresh water. • Use a neutral detergent or a delicate commercial product (not alkaline) diluted in fresh water. • Spread the solution with a soft and clean cloth. Frequently rinse the cloth in order to pre- vent deposits of dust or dirt particles which could scratch the glass or its glazed coating. • Rinse the soapy surface with plenty of fresh (or distilled) water. • We recommend drying the glass with chamois leather only. For cleaning the tinted windows and windscreen it is possible to use the same type of detergent used for internal cleaning (non-aggressive and non-acid).

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Mirrored glass walls	Regular cleaning	**CAUTION** For cleaning mirrored glass walls only use water and neutral soap. Different products could damage the surface coating.
Windscreen wiper and washer	Regular cleaning (as required)	Wash them carefully with fresh water and coat with Vaseline oil; grease the spring with silicone grease. Check the rubber blade conditions regularly, and replace the blades if worn; this prevents bad visibility problems.
Windscreen and deckhouse glass	Inspection of seals	**CAUTION** At least once every 6 months check the condition of the glass seals. If you feel that the seals have deteriorated due to a wear, please contact our Service Department.
Light fittings	Regular cleaning	DO NOT use alcohol-based products to clean the light bodies.

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Instrumentation and navigation lights	Regular cleaning (as required)	Use clean wet rags for cleaning. **MAINTENANCE** At least once a week, check the operation of the navigation lights. At least once a week, carry out careful cleaning of glasses and headlights. At least once every six months, check the presence of corrosion in the connections of the navigation light cables. At least once every six months, tighten the cable connections of the navigation lights. **CAUTION** Do not use chemical or abrasive products. After navigation, cover instrumentation and equipment.
Metal parts and connectors	Regular cleaning (as required)	Grease connectors and metal parts of the devices installed and exposed to moist and salty environment to prevent oxidation; pay particular attention to the above-mentioned components of the steering system, gangway, hatches, and control units, etc..

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Plexiglass	Regular cleaning (as required)	To clean the Plexiglas, only use products that do not contain aggressive substances such as alcohol, ammonia or the like. Preference for antistatic liquid detergent. **CAUTION** Never use alcohol or acetone to clean Plexiglas parts; they could crack inside. Use cloth of soft material (such as cotton or felt) To clean, degrease and polish the Plexiglas, spray a small amount of antistatic liquid detergent on the cloth and wipe the surface. The antistatic effect of the cleaner is very useful to prevent dust from being attracted by static electricity generated during rubbing and that makes it very difficult to clean the entire surface smoothly. If the cause of opacity is dirt, simply use an anti-static cleaning fluid and a soft cloth to remove smears: the Plexiglas will clean and bright. If opacity is due to the contact with aggressive substances, it means that the surface has been compromised in the structure and the Plexiglas will not return as before. If the marks are light and have been caused by wear and not from chemicals, anti-scratch paste can solve the problem. Even for light scratches anti-scratch paste is suitable.

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Shower	Checking and replacing gaskets	**CAUTION** Carry out regular maintenance and/or replacement of the shower box seals, in order to prevent water leakage. **CAUTION** The shower enclosures are made in such a way as to avoid water leaks outside the enclo- sure, under normal conditions of shower use. However, they do not have a watertight seal.  The functionality of the shower cubicles is subject to the use for which it was designed; the water tightness is therefore conditioned by the correct use.

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Fenders	Regular cleaning (as required)	Always keep all the fenders and their sleeves clean by washing regularly with fresh water, in order to prevent the salt deposited on them from scratching the paint of the hull.
Back glass wall	Cleaning	The stern glass wall has many functional and aesthetic advantages. The salon door, that completely overlaps the fixed part starboard makes it possible to convert the salon and the cockpit into a single, large room. Of course, this glass wall needs particular care during washing, because a lack of care may allow water to penetrate. To avoid this problem, we advise taking great care to the direction of the water jet for rinsing: it should not be directed frontally and with pressure, but the water should be let flow down from above. **MAINTENANCE** At least once a week, clean thoroughly. At least once a month, check the operation. At least once every six months, check the locking with open door. When necessary have them adjusted.

12.6 MARBLE MAINTENANCE

THE WORST ENEMIES OF MARBLE ARE:
Some substances damage marble more than others.
Keeping them away from surfaces, or at least removing them promptly as soon as they come into contact with the marble is very important if you want to preserve its appearance.

The worst enemies of marble surfaces are:
1. **Water:** a enemy of marble, especially that with a high presence of limestone. If it settles on marble surfaces and is not dried, it can ruin them in the long run.
2. **Coffee, wine and dyes:** as dark substances, coffee, wine and other food dyes can damage marble when they come into contact with it.
3. **Tomato sauce:** tomato sauce, when it stains, is very difficult to remove, and the same applies to marble.
4. **Polishing wax:** marble should be polished from time to time, but never apply too much wax to avoid risking obtaining the opposite effect, i.e. making it dull.
5. **Sugary substances:** fruit, juices and sweet substances, if deposited on marble, can corrode it, ruining its natural lustre. If they accidentally fall on the marble, they need to be cleaned quickly.

HOW TO CLEAN MARBLE:
1. **Damp cloth**: If the stain to be removed is not particularly stubborn, a damp cloth can be used to clean marble surfaces and achieve an excellent effect. It is important to always remember to dry the surface, otherwise, limescale will damage it.
2. **Marseille soap:** Marseille soap is also perfect for cleaning marble surfaces. Lightly dampen a cloth and rub it lightly on the soap, then wipe the marble. After rinsing, carefully dry the surface, which will look as good as new.
3. **Hydrogen peroxide:** Hydrogen peroxide is another product that can have infinite uses, including cleaning marble. Put a drop of hydrogen peroxide on a damp cloth and rub it on the marble surface to quickly restore its shine.
4. **Baking soda:** Baking soda is another useful substance for cleaning marble. Put a tablespoon of baking soda in a glass or container and mix. The resulting compound is a slightly abrasive paste that will penetrate the marble, freeing it from foreign substances, the stains. Baking soda is also perfect for polishing, so the marble will look shinier after the treatment.
5. **Detergents for marble:** On the market, you can find numerous special detergents for cleaning marble surfaces. They are very useful for those who have large marble surfaces to wash, such as floors. Make sure that the detergent is not too acidic and aggressive, or the surface will be weakened over time and more susceptible to stains.

HOW NOT TO CLEAN MARBLE:

CAUTION
Do not use generic household cleaners of any kind.

Cleaning marble with products purchased in non-specialised shops that contain acids, alkalis and other chemicals can mark or damage the surface, leaving the stone more vulnerable to staining.
The most common and popular household cleaners are too aggressive for use on marble and can cause damage.
Trying to save time by using low-end products such as general surface cleaners will only lead to expensive repairs or marble restoration.

CAUTION
Do not use vinegar, ammonia or lemon juice.

Powders and even "soft" creams contain abrasives that can scratch and dull the surface.
Detergent soap scum and water are the main contributors to bathroom wear.
Use only specific detergents for marble to avoid most marble cleaning problems.

CAUTION
Do not place toiletry products on the worktop.

Hair products, toothpaste, perfumes, colognes, nail products, creams, lotions and potions can stain or mark the surface leaving dots, rings or dull areas.
Protect surfaces by making sure these products do not come into contact with the marble.

12.7 SPEED MULTISENSOR MAINTENANCE

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Speed multisensor with valve	Regular check Ordinary Maintenance	As indicated in the Manufacturer's manual. **MAINTENANCE** At least once every six months check the correct operation. At least once every six months check the connection of the cables. At least once every six months check the propeller and grease the outer Log.

CUSTOM LINE 140’

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Troubleshooting

13.1 GENERAL NOTES

The yacht is equipped with a large number of complex devices and installations. These require regular checks and maintenance to keep their operation correct.
One of the factors that might lead to problems or faults, is usually the irregular use of the yacht and, as a consequence of this, of the on-board devices. Experience has shown that the regular use of the devices normally means fewer problems and , therefore, we recommend regularly operating all on-board devices for short periods.
When an on-board problem is detected, it is essential to carry out a quick check in order to understand its cause and, if possible, to find a remedy. In order to analyse a malfunction it is appropriate to ask the following questions:

- Is the malfunction caused by a human error?
- Is the malfunction due to bad weather conditions ?
- Is the malfunction due to a device failure or to a fault of another external device, but in some way connected to the first one?
- At what stage does the malfunction occur: at the start, at steady state, at device switch OFF?
- Does the malfunction occur repeatedly; if yes in which way?
- What does the malfunction imply from an operating point of view?
- Does the malfunction trigger any signals (luminous and/ or acoustic: sirens, buzzers, etc.) and/or messages on a display and/or anomalous noises (like whistles, beats, buzzes, etc..) and/or anomalous smells (burning smell)?
- Does the malfunction interfere with the operation of other devices?
- Is the malfunction a real apparent fault (that is, it can be cleared after a device reset and following switch ON).

The best, most complete answer we can give to the previous questions, will give us a malfunction analysis.
This section of the Manual analyses the most likely causes, that may lead to the malfunctioning of a component of the main components/ devices on board. For any possible analysed cause, a corrective action is advised, in order provide a solution to the problem that is as effective as possible.

WARNING
We recommend, in order to operate with peace of mind, in full safety, traking good note of the Safety Rules relevant to Maintenance described in the "SAFETY RULES".

WARNING
Corrective actions may only be carried out by specialised and authorised personnel.
CUSTOM LINE declines all responsibility for proposed corrective actions carried out by unskilled personnel.

CAUTION
For more detailed information, please refer to the various Manufacturer's Service Departments or contact the CUSTOM LINE after sales & service department directly.

13.2 PROPULSION ENGINES

For further information, please contact the CUSTOM LINE after sales & service department.

PROBLEM	CAUSE	CORRECTIVE ACTION
1. Engine does not turn when starter is actuated: - Battery	• Low or defective • Cable connections defective	• Charge or replace (see Manufacturer's documentation) • Check that cable connections are properly secured (see Manufacturer's documentation)
- Starter	• Engine wiring or starter defective	• Check that cable connections are properly secured, contact Service
- Engine wiring	• Faulty	• Contact Service Department
- LOP Local Operation Panel	• Loose seating of assemblies or connectors	• Visual inspection
- ECU Engine Control Unit	• Loose plug-in connections	• Check plug-in connections
- Engine	• Gear locked (engine cannot start manually)	• Contact Service Department
- Start-interlock limit switch	• Limit switch not installed or defective • Wiring defective	• Check limit switch • Check wiring
2. Engine turns but does not fire - Starter	• Poor or defective starter rotation	• Charge or replace battery (see Manufacturer's documentation)
- Engine wiring	• Faulty	• Contact Service Department
- Fuel system	• Not vented	• Check vent
- ECU Engine Control Unit	• Faulty	• Contact Service Department

PROBLEM	CAUSE	CORRECTIVE ACTION
3. Engine fires unevenly		
- Fuel injection equipment	• Injector defective	• Replace
- Engine wiring	• Faulty	• Contact Service Department
- Fuel system	• Not vented	• Check vent
- ECU Engine Control Unit	• Faulty	• Contact Service Department
4. Engine does not reach full-load speed		
- Fuel supply	• Shut off	• Open shut-off valve before fuel pre-filter (water/ fuel separator)
	• Fuel pre-filter clogged (water/fuel separator)	• Replace
	• Fuel filter clogged	• Replace
- Air supply	• Air cleaner clogged	• Check air cleaner clogging indicator
- Fuel injection equipment	• Injector defective	• Replace
	• Injection pump defective	• Contact Service Department
- Engine wiring	• Faulty	• Check yacht's load condition, reduce load if necessary
- Yacht	• Yacht too heavy	• Trim yacht
	• Marine growths on hull, propeller shaft, propeller, rudder	• Clean
- Rudder	• Rudder position	• Align rudder
- Propeller	• After propeller replacement: propeller too small/ large	• Replace only with original spares

PROBLEM	CAUSE	CORRECTIVE ACTION
5. Engine speed not steady		
- Fuel injection equipment	• Injector defective • Injection pump defective	• Replace • Replace
- Speed sensor	• Faulty	• Contact Service Department
- Fuel system	• Not vented	• Vent
- ECU Engine Control Unit	• Faulty	• Contact Service Department
6. Charge-air temperature too high		
- Coolant	• Incorrect coolant concentration	• Check coolant properties
- Intercooler	• Contaminated	• Contact Service Department
- Engine room	• Air intake temperature too high	• Check fans and ventilation air supply
7. Charge air pressure too low		
- Air supply	• Air cleaner clogged	• Check air cleaner clogging indicator
- Intercooler	• Contaminated	• Contact Service Department
- Turbo charger exhaust	• Faulty	• Contact Service Department
8. Coolant leaks from intercooler		
- Intercooler	• Leaking, major coolant discharge	• Contact Service Department
9. Exhaust gas black		
- Air supply	• Air cleaner clogged	• Check air cleaner clogging indicator
- Fuel injection equipment	• Injector defective • Injection pump defective	• Replace • Replace
- Yacht	• Overload	• Contact Service Department

PROBLEM	CAUSE	CORRECTIVE ACTION
10. Exhaust gas blue - Engine oil	• Too much oil in engine • Oil separator clogged	• Drain engine oil • Replace
- Exhaust turbocharger, piston rings, cylinder liner	• Faulty	• Contact Service Department
11. White exhaust gas - Engine	• Not at operating temperature	• Run engine to reach operating temperature
- Fuel system	• Water in fuel	• Check fuel pre-filter (water/fuel separator filter) and drain pre-filter
- Intercooler	• Leaking	• Contact Service Department

13.3 GEAR BOX

For further information, please contact the CUSTOM LINE after sales & service department.

PROBLEM	CAUSE	CORRECTIVE ACTION
1. Transmission oil temperature too high	• Insufficient water flows through oil heat exchanger	• Increase water flow
	• Drain sludge from oil cooler	• Clean oil cooler
	• Undefined range, clutch slipping	• Adjust mechanism
2. Transmission oil temperature too low	• Excessive water flow through heater exchanger	• Reduce water flow
3. Oil pressure upstream of oil cooler and filter too high (*)	• Clogged oil filter	• Clean filter and drain off oil sludge
	• Oil cooler dirty	• Clean oil side of oil cooler
4. No operating oil pressure (*)	• No oil in transmission	• Add oil
	• Wrong rotation direction at transmission input	• Use special transmission version
	• Faulty display unit	• Remedy fault

(*) see monitoring data.

PROBLEM	CAUSE	CORRECTIVE ACTION
5. Operating oil pressure too low (*)	• Oil viscosity too low	• Use a prescribed oil grade
	• Incorrect oil pump ratio	• Adjust oil pump ratio to suit engine operating speed range
	• Defective oil pump	• Replace oil pump
	• Pressure relief valve leaking	• Remedy the fault
	• Timeswitch for pressure modulation defective	• See Manufacturer's documents
6. Operating oil pressure too high (*)	• Oil viscosity too high • Incorrect oil pump ratio	• Use a prescribed oil grade • Adjust oil pump ratio to suit engine operating speed range
7. Drive interrupted between transmission input and transmission output; clutch not transmitting torque	• Mechanical transmission actuation: incorrect shift angle	• Adjust setting
	• Electrical transmission actuation: electrical system fault	• Remedy electrical system fault
	• Defective solenoid valve	• Replace
	• Longitudinal valve stuck	• Remedy fault
	• No operating oil pressure	• See "No operating oil pressure" or "Oil pressure too low"
8. Drive between transmission input and transmission output cannot be interrupted; clutch does not disengage	• For possible causes and remedial actions, see "clutch not transmitting torque" fault	• Use a prescribed oil grade • Adjust oil pump ratio to suit engine operating speed range

(*) see monitoring data.

PROBLEM	CAUSE	CORRECTIVE ACTION
9. Clutch slips at high engine speed	• Operating oil pressure too low (*)	• See remedy for "Operating oil pressure too low". If the fault cannot be remedied on board, proceed at reduced engine speed - so that the clutch does not slip - until repairs can be carried out. Avoid changes in direction or only change direction with the propeller almost at a standstill and with engine idle speed as low as possible
10. Oil level decreases rapidly (as indicated on the dipstick). See maintenance job "Oil level check"	• Leaks on housing joints or oil lines, oil escaping from shaft seals • Oil cooler leaking into cooling system	• Correct mechanical fault • Remedy fault, replace oil cooler if necessary
11. Oil level increases. See maintenance job "Oil level check"	• Water entering the oil circuit from the cooling system	• Correct mechanical fault
12. Transmission is too loud at certain speed ranges	• Torsional vibration resonance of propulsion system in engine idle speed range	• Avoid critical speed range. Use more suitable flexible coupling (see Manufacturer's document)
13. Transmission too loud at engine idle speed range	• Torsional vibration resonance of propulsion system in engine idle speed range	• Increase engine idle speed range
14. Engine stalls following rapid change from "Ahead" to "Astern"	• Engine idle speed too low • Change in direction made too quickly or made at excessive craft speed	• Increase engine idle speed range • Change direction (see Manufacturer's document)

If the fault cannot be remedied, the transmission lubricating oil supply is also at risk. Proceed at reduced engine speed only until repairs can be carried out.

13.4 GENERATOR

For further information, please contact the CUSTOM LINE after sales & service department.

PROBLEM	CAUSE	CORRECTIVE ACTION
1. Fluctuating or low oil pressure	• Oil level too low	• Stop the generator immediately and top up with suitable oil
	• Dirty oil	• Replace dirty oil with new suitable oil
2. Cooling water temperature too high	• Excessive load	• Reduce the load
	• Air in the cooling circuit	• Bleed the circuit
	• Coolant low level or wrong mixture	• Restore the cooling water level and correct percentage
	• Sea water intake is obstructed or sea water intake strainer is clogged	• Clean sea cock and strainer
3. Black smoke	• Engine room insufficient ventilation	• Check that air intakes are not obstructed
	• Excessive load	• Reduce the load
	• Unsuitable fuel	• Replace with suitable fuel
	• Cooling water temperature too high	• See step 2
	• Lack of maintenance	• Have the scheduled maintenance operations carried out

PROBLEM	CAUSE	CORRECTIVE ACTION
4. Blue smoke	• Excessive oil	• Discharge the excess oil by draining oil filters
	• Dirty oil	• Replace dirty oil with new suitable oil
	• Lack of maintenance	• Have the scheduled maintenance operations carried out
5. White smoke	• Cold generator	• Let the generator warm up
	• Generator with too low load	• Increase the generator load
6. Lack of power	• Engine room insufficient ventilation	• Check that air intakes are not obstructed
	• Fuel filter clogged	• Clean
	• Unsuitable fuel	• Replace with suitable fuel
	• Cooling water temperature too high	• See step 2
	• Lack of maintenance	• Have the scheduled maintenance operations carried out
7. Excessive or unusual noise	• Insulation cover not properly fastened	• Check
	• Leakage from the exhaust	• Check the exhaust
	• Exhaust not properly fastened	• Check the exhaust
	• Lack of maintenance	• Have the scheduled maintenance operations carried out

13.5 BATTERY CHARGER

For further information, please contact the CUSTOM LINE after sales & service department.

PROBLEM	CAUSE	CORRECTIVE ACTION
1. No inverter output voltage. The inverter does not work, or just for a few seconds	• Battery voltage may be too low. Low voltage cut-out switch trips at 10V (12V) , 20V (24V) or 40V (48V)	• Recharge battery for 24 hours
	• Battery connections are corroded	• Check for corrosion, and replace bad sections
	• Check if the inverter is overheated. In case of overheating LED of temperature + failure lights up	• Disconnect connected load. Improve ventilation
	• Overload or short circuit	• Disconnect excessive load
	• LED overload + failure will be lit	• Remove short circuit condition
2. Battery charger does not operate	• AC voltage not supplied	• Check installation • The AC green LED should light up, if power is supplied
	• Input voltage too low	• Check fuses or circuit breakers
	• The battery charger will not operate below 160/80V	• Check the generator output voltage, remove connected load, output voltage should come up
3. The battery charger does not operate, while mains voltage is present	• Mains frequency could be too high or too low	• Check the generator output frequency
	• The frequency must be within 35-66 Hz	• Check generator rpm

PROBLEM	CAUSE	CORRECTIVE ACTION
4. Batteries not fully charged	• Charge current too low • Current to load too high • Charge time too short • Battery temperature too low • Defective battery (short circuit in cell)	• See "charge current too low" • Decrease the battery load • Replace the battery • Use temperature sensor • Replace the battery
5. Battery loses charge quickly	• Battery capacity reduced because: - Wastage - Sulphating/stagnation	• Replace batteries • Charge/discharge several times, this might help, otherwise replace batteries
6. Batteries are warm	• Defective batteries (short circuit in cell) • Battery temperature too high • Charge voltage too high	• Replace batteries • Use temperature sensor • Check the switches setting

13.6 INVERTER

For further information, please contact the CUSTOM LINE after sales & service department.

PROBLEM	CAUSE	CORRECTIVE ACTION
1. No output voltage and no lighting of warning lights (LED off)	• High output voltage	• Check the battery voltage and switch off the charger
	• DC fuse burnt out	• Replace the fuse
	• Switch set on remote control, but this is not available	• Place the switch to ON
2. No voltage in output, LED of battery charge is ON	• Batteries flat	• Charge the batteries, the inverter will switch on when the battery voltage exceeds 24 V
3. No voltage in output, temperature LED ON	• The inverter is overloaded	• Reduce the charge and let the inverter cool down
4. No output voltage, LED "ON" is lit	• Inverter is in stand-by	• Connect a charge or modify the jumper's settings
5. Low voltage in output	• Low power supply = jumper adjustment	• Connect a charge > 30 W or modify the jumper's settings
6. The inverter turns on and off, the "ON" LED and the battery charger LED flash in turns	• Batteries flat	• Disconnect the charge and charge the batteries
	• Wires are too thin	• Replace with wires of correct diameter
	• The connections are corroded or faulty	• Tighten connections. If wires are burnt out, replace them
7. The inverter lights ON/OFF, the ON LED is lit, the "overload" LED flashes once a second and the fan operates at full speed.	• The inverter is overloaded	• Reduce the inverter load
	• The inverter has been switched off ten times as a result of an overload or short-circuit condition	• Reduce the load or the short-circuit. Reset the inverter manually through ON/OFF switch

13.7 UTILITIES

For further information, please contact the CUSTOM LINE after sales & service department.

PROBLEM	CAUSE	CORRECTIVE ACTION
1. A connected utility will not receive power supply	• Power line fuses blown • Wiring disconnected • Connections oxidised maintenance	• Check the line and replace the fuses • Check wiring connections • Check and carry out proper maintenance

13.8 FUEL SYSTEM

For further information, please contact the CUSTOM LINE after sales & service department.

PROBLEM	CAUSE	CORRECTIVE ACTION
1. Irregular fuel supply to engines and generators and engines	• Circuit valves closed or not fully open • Filters clogged	• Check/Open • Clean

13.9 BLACK WATER DISCHARGE SYSTEM

For further information, please contact the CUSTOM LINE after sales & service department.

PROBLEM	CAUSE	CORRECTIVE ACTION
1. Holding tank or grey water tank drain irregular	• Circuit valves closed or not fully open • Lack of maintenance • Abnormal pump operation	• Check/open • Carry out maintenance • Check

13.10 FRESH WATER SYSTEM

For further information, please contact the CUSTOM LINE after sales & service department.

PROBLEM	CAUSE	CORRECTIVE ACTION
1. No water to outlets	• Circuit valves closed or not fully open • Tanks empty • Pump not receiving electric power supply • Protection pump mode	• Check/open • Fill the tanks and bleed the circuit • Check • Reset
2. Pump starts even with outlets closed	• Circuit leaking	• Eliminate leakage
3. The pump gets continuously on/off	• The tank has no air inside the membrane	• Contact the Service Department

13.10.1 Watermaker

For further information, please contact the CUSTOM LINE after sales & service department.

PROBLEM	CAUSE	CORRECTIVE ACTION
1. The pump runs but can't reach the pressure as indicated	• The pump sucks air • Worn valves • Worn seat of pressure relief valve • Improper or worn nozzle • Worn gaskets	• Check the intake pipes. They must be well air-tight • Check and/or replace • Check and clean • Check and/or replace • Check and/or replace
2. Irregular pressure variations	• Worn intake and/or pressure relief valve • Presence of foreign bodies in valves • Air suction • Worn gaskets • Relief valve too open	• Check and/or replace • Check and clean • Check intake pipes • Check and/or replace • Close the valve nut clockwise
3. Drop in pressure	• Worn nozzle • Worn intake and/or pressure relief valve • Presence of foreign bodies in valves	• Replace • Check and/or replace • Check and clean
4. Noise	• Air suction • Broken or unloaded spring of intake and/or pressure valves • Presence of foreign matters • Worn bearings • Exceeding temperatures of pumped fluid	• Check the suction pipes are well air-tight • Check and clean • Check and clean valves • Replace • Decrease the temperature

13.11 STEERING SYSTEM

For further information, please contact the CUSTOM LINE after sales & service department.

PROBLEM	CAUSE	CORRECTIVE ACTION
1. Air bubbles or foam in the system	• The oil level in the tank is too low and does not allow the suction pipe to be completely plunged. In this way the pump sucks oil and air at the same time	• Check
	• Possible openings and little holes on the suction pipes or faulty pump seals, which allow air to penetrate	• Check
2. The pump does not deliver oil	• Wrong rotation direction	• Check
	• Obstructed ducts or suction strainers	• Check
	• Oil level in the tank too low	• Check
	• Air leakages in the suction system	• Check
	• Oil too viscous with some difficulties in passing through	• Check
	• The shaft or other components of the pump are broken	• Replace
3. Lack of pressure in the system	• The pump does not deliver oil	• Check
	• Relief valve is not calibrated	• Check
	• Free discharge of oil to the tank somewhere in the system	• Check

PROBLEM	CAUSE	CORRECTIVE ACTION
4. The pressure of the system is low or fluctuating	• Possible leaks in the piping or elsewhere in pressurized parts of the system	• Check
	• Relief valve set at a too low rate	• Check
	• The relief valve remains open or oscillates in its housing	• Check
	• Restriction of pump suction pipes or possible obstruction of filter	• Check
	• Air in leaks in suction pipes or by pump seals	• Check
	• Worn pump	• Check
5. Pump too noisy	• Wrong pump rotation direction	• Check
	• Oil with air bubbles	• Bleed
	• Oil viscosity causing obstructions to the suction system	• Check
	• Irregular flow of oil into the pump, caused by an insufficient filtering capacity of the filter (the filter could be dirty or not suitable)	• Check/Clean
	• Big lacks of charge along the suction line	• Check
	• Worn pump components	• Check/Replace
	• Relief valve vibrations	• Check
	• Mechanical vibrations due to bad anchor action	• Check

PROBLEM	CAUSE	CORRECTIVE ACTION
6. Too high temperature	• The pump is working at a higher pressure than permitted	• Check
	• Faulty or worn pump which causes internal leaks	• Check
	• Excessive blow-by through valves and cylinder	• Check
	• Oil too viscous	• Check
	• Continuous overloaded operation	• Check
	• Temperature too high in the room where the pump unit is placed	• Check
7. Leaks from the seals	• Possible abrasive substances have entered into the oil circulation, damaging the pump's shaft	• Check
	• Seals are faulty, broken or mounted in a wrong way	• Check
	• Too hot oil	• Check
8. Pump overcharging the motor	• Too viscous oil	• Check
	• Obstructed delivery line or excessive resistance	• Check

13.12 AIR CONDITIONING SYSTEM

For further information, please contact the CUSTOM LINE after sales & service department.

PROBLEM	CAUSE	CORRECTIVE ACTION
1. High crankcase temperature	• Overheating	• Check coolant charge
	• Poor circulation of treated water (winter cycle) or condensation water (summer cycle)	• Correct circulation
2. Low suction pressure	• Low coolant charge	• Add
	• Poor circulation of condensation water (winter cycle) or treated water (summer cycle)	• Correct circulation
3. System noisy	• Loose fastening bolts	• Tighten bolts
	• Unit base improperly insulated	• Insulate foundation
	• Improper support or insulation of piping	• Use correct piping techniques and support piping with suitable hangers
	• Piping vibrations	• Clip pipes correctly. Check the couplings

PROBLEM	CAUSE	CORRECTIVE ACTION
4. Compressor does not start	• Power off • Thermostat broken • Pressure switch open • Faulty wiring • Pumps not operating • Flow-switch does not close • Gas discharging unit	• Check the supply. Check fuses and/or magneto-thermal switches • Adjust thermostat • Reset switch and check proper calibration, 20 bar (h.p.) and 2.5 bar (l.p.) • Check diagram and rewire • Check pumps free rotation. Check the magneto-thermal switches • Restore correct treated water circulation • Check coolant circuit for possible breaks due to transport and installation
5. Compressor cycles intermittently	• Low pressure switch erratic in operation • Low coolant charge • Internal protection tripped	• Check pressure switch setting. Check good circulation of condensed water • Add • Check for any voltage drop, correct
6. High delivery pressure with compressor stop (high pressure switch).	• Coolant overcharge • Insufficient or no condenser water flow; clogged condenser or sea-water strainer • Condensed water pump off • Poor treated water circulation (winter cycle) • Air in coolant circuit	• Remove excess coolant • Adjust water regulating valve to condenser; clean condenser or sea-water strainer • Check pump and start • Check for air in the circuit. Check for possible clogging • Restore vacuum and refill with coolant

13.13 GANGWAY

For further information, please contact the CUSTOM LINE after sales & service department.

PROBLEM	CAUSE	CORRECTIVE ACTION
1. The system does not react to the controls	• Flat battery	• Verify that the battery of the sender is loaded or correctly inserted • Verify that the self learning of the sender code has been carried out
	• 3 A fuse	• Check that the hydraulic control unit is correctly supplied; check for the integrity of the 3 A fuse.
2. The gangway does not move	• The hydraulic power unit has a thermal protection	• Wait until hydraulic power unit is disconnected (about 5 minutes) and re-try handling on the adjusting trimmer (shift few degrees each time), if the problem continues, also with trimmer at bottom scale (clockwise) address to service department.

CUSTOM LINE

BEYOND THE LINE